Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME IX.] NEW-YORK JULY 22, 1854. [NUMBER 45.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY,
At 128 Fulton street, N. Y. (Sun Buildings.)
BY MUNN & CO.

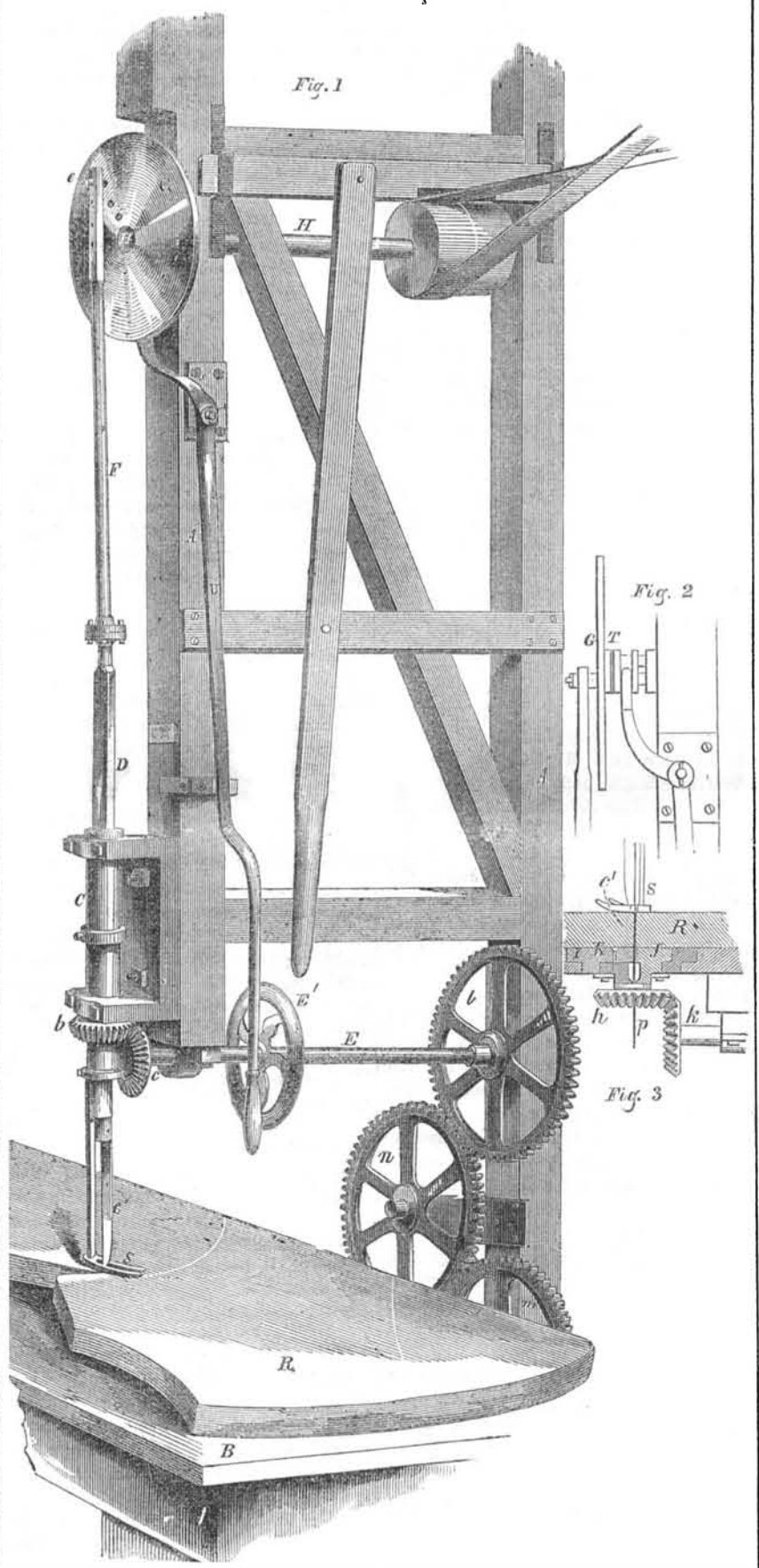
Agents.

Federhen & Co., Boston.	Dexter & Bro. New York
Stokes & Bro., Philadelphia.	B. Dawson, Montreal, C.E
Cook, Kinney & Co., San Francisco.	M. Boullemet, Mobile, Ala
Le Count & Strong, San Fran.	E. W. Wiley, New Orleans
Avery Bellford & Co., London	E. G. Fuller, Halifax, N. S
S. G. Courtenay, Charleston.	M.M. Gardissal & Co. Paris
H. Taylor, Baltimore, Md.	S.W. Pease, Cincinnati, O

Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS—$2 a-year:—$1 in advance and the remainder in six months.

TAILOR'S CLOTH CUTTING MACHINE.



Tailors' Cloth Cutting Machine.

Figure 1 is a perspective view; fig. 2 is a side outline view of the clutch and knife rod, and fig. 3 is a small vertical section showing the cutting and other parts through and under the table, of a new machine devoted to the Tailoring Art, for which a patent was granted to John Harraday, of this city, on the 30th of May last—patents having been previously secured through our agency in France and England. Great improvements having been made in the manufacture of garments by sewing machines, it seemed as if some other machine were wanted to form a capstone to the many new inventions in this manufacture. This Mr. Harraday has effected by the invention of this simple and excellent cloth cutting machine.

Upon a simple frame, A A, placed above a table, B, is secured a shaft, H, near the top, in proper bearings. This shaft is driven by a band from a steam engine; or the machine may be driven by hand. On one end of this shaft is a plate, G, which has a number of holes in it. In one of these holes is inserted a pin, *e*, which thus connects the rod, F, with plate, G; therefore, as the shaft, H revolves, the rod, F will have a reciprocating up-and-down motion imparted to it, as the plate, G, thus acts the part of a crank, and the different holes in the plate and rod, F, serve to give different lengths of stroke to the knife, *c'*, secured to the arm, D, which is allowed to move freely up and down in the hollow stock, C, but by a feather is moved round when desired, by turning the spindle E, by the hand-wheel, E', which gives motion to the bevel pinions, *b c*. Behind the knife, *c'*, and attached to the stock, is a bar which has a prong foot, S, between the toes of which the knife, *c'*, plays. This prong is to keep the cloth, while undergoing cutting, from being lifted up by the action of the knife, and is therefore stationary. R represents a pile of cloth being cut into one side of a vest pattern.

The knife is of peculiar construction, and so is that portion of the table immediately around which it plays. The lower end of the knife is a thin narrow metal rod, *p*, fig. 3; it plays through a hole in the table, and down through the center of the pinion, *h*, on the under side of table, B. This pinion is hollow, and has an opening for *p* to pass through it. J is a small circular plate or disk, inserted into another rebate plate, I, in the table. (The left side of this plate is not distinctly shown in the figure.) The plate, J, is cast in one piece with pinion *h*, and moves round with it. K is a small piece inserted at one side of plate, J, and secured with a screw, and answers for a cap.

It will easily be understood, that when the cloth, R, say twenty plies of it, is laid upon the table, B, and the top piece chalked out for a certain piece of garment to be cut, (all the pieces of the same size, like one side of a vest,) that the reciprocating action of the knife will cut straight forward, by pressing the cloth toward the knife; this action of the knife will be easily understood, but when an angle is to be formed, a sharp corner to be turned, how is this to be done? Simply by turning round the disk plate, J, in the table, and the knife, *c'*, simultaneously, to cut on the new line. By turning the hand-wheel, E', the wheels, *l n m*, turn the spindle, *k*, which turns pinion *h*, and the plate, J, and at the same time the spindle, E, moves the pinions, *c b*, which turns the cutting knife, *c'*, and the hold-down, S, all together. It is also necessary that the knife should turn in the smallest possible space, like a point—this is done by the knife being held up stationary while it is being turned above the cloth, and only the narrow thin guide-rod, *p*, suffered to turn in the cloth. The knife therefore is arrested and held suspended at the highest point of the stroke, by a peculiar spring-brake in the post above crank plate G; a pin being inserted into the periphery of said plate, which is caught between two projections of the brake. (These are not shown in the figure, but are important devices for the perfect action of the machine.) U is the clutch lever, for throwing the clutch collar and plate, G T, in and out of gear, with the driving shaft, H. It is placed conveniently for the operator, so as to throw the cutting-rod out of gear and motion, instantaneously.

In the slot in the plate, J, through which the cutting knife plays, there is a metal edge at the one side, (bearing against the knife,) and a small flat spring on the other side; these prevent the cloth from being pushed or dragged down by the knife while cutting. By having the number of plies of cloth, R, set on the table, as we have described, and as shown, twenty or more similar pieces for different garments, vests, or pants, &c., can be cut out at one operation. With this machine the inventor, Mr. Harraday, who is a practical tailor, can cut out 500 pairs of pantaloons in one day, and with more practice, he has no doubt of being able to cut 1000 pairs in the same time. The advantage of this machine lies in cutting so many pieces of the same pattern at one time; it can cut on any line, straight or curved, and is altogether a most useful and ingenious machine.

The machine represented here is to be seen in operation at any time, at the cutting-room of Alexander Holdway, No. 33 Gold street, this city, who will take pleasure in showing its operation, and those interested in the ready-made clothing business would do well to examine it.

More information respecting it may be obtained by letter or otherwise, from Mr. Harraday, at No. 692 Broadway, this city.

Effects of Cold on Railroad Machinery.

The "Railroad Journal" says that the lest winter was ruinously severe for railroad operations, and several of the lines above latitude 43 degrees suffered extensively, in the breakage of iron axles, chairs, tires and wheels.

On the Vermont Central Railroad, in a period of two months, 76 wrought iron tires were burst and broken; while during the whole winter, 43 driving wheel centers, 12 cranks, and 24 connecting rods, besides a large number of axles, were also broken. For three months the road-bed was frozen as hard as a rock, and hardly a run through without some failure of machinery. The New York Central during the same time, suffered proportionately.

The "Journal" advises companies whose roads and machinery are subject to such depreciation, to lay down continuous stringers, six inches deep below the rails, and upon the tops of the sleepers, which would be likely to preserve the required elasticity of the track, support the joints and raise the rails above dangerous contact with the frozen ground. The expense of this would not exceed what the damage by breakage now costs.

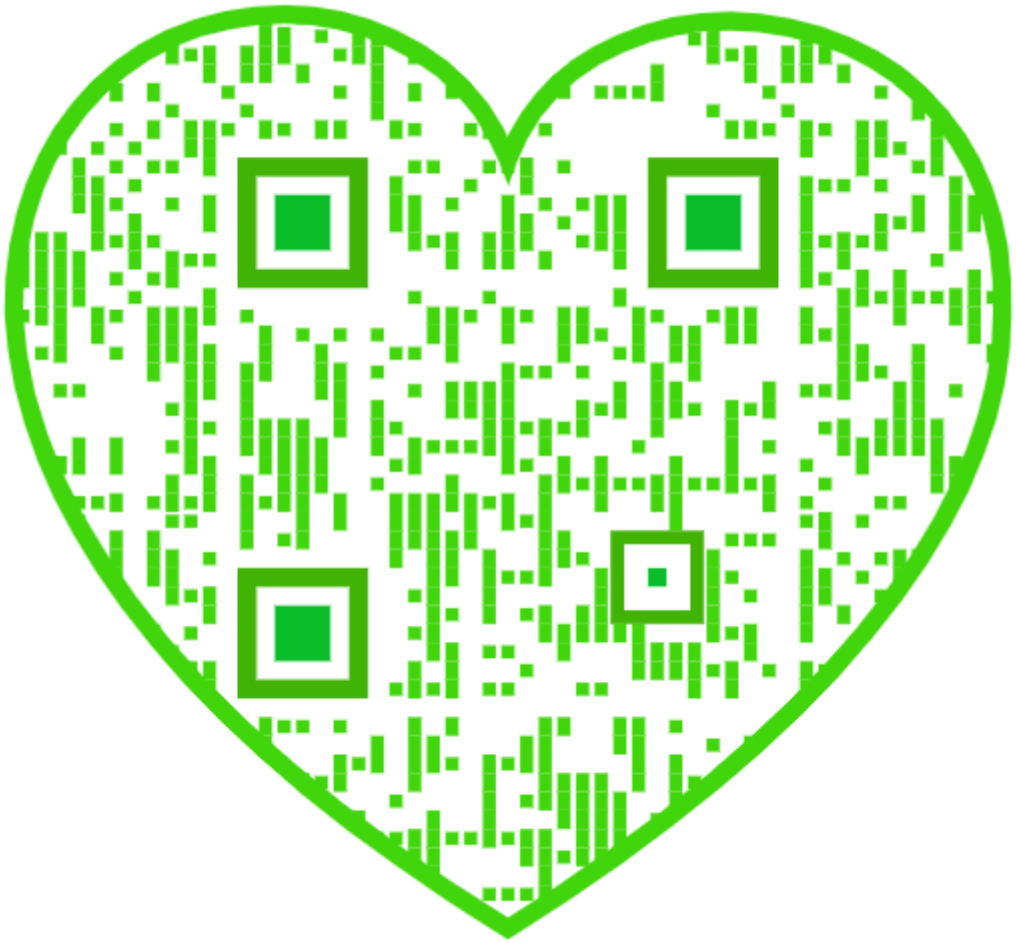
The Wheeling Bridge.

Mr. Ellet, Civil Engineer, and designer of the Wheeling suspension bridge, announces that he has been served by the Supreme Court with an injunction, restraining him from rebuilding the bridge, except at a certain elevation. The "Engineer" takes issue with Justice Grier, and says he is willing to leave with Congress the grave question, whether "the power to establish post routes," and "the power to regulate commerce among the several States," really resides in Congress, and may be constitutionally exercised by Congress *alone*, or whether the Congress holds those powers, as is maintained by Judge Grier, subject, in their exercise, to the consent and approbation of the Supreme Court. He further says, that if he is not obstructed by the Court, the repairs of the Wheeling bridge will be so far advanced that the structure may be again opened to general travel, and the transit of the United States mails in a few weeks.

Moth Millers.

The trees in the parks of our city are greatly infested this year with miller moths; these it is proposed to destroy by placing torches under the trees at night. This, we think, is a very good but expensive plan to accomplish their partial destruction.

© 1854 SCIENTIFIC AMERICAN, INC



(For the Scientific American.)

Flax Industry.—No. 12.

Flax Industry of Russia.—The important position which Russia occupies at the present day, as regards the production of flax and hemp, is well known, but the means of information relative to the production, exportation, or preparation of this article, in common with the statistics of the other sources of agricultural and mineral wealth in this country, are exceedingly limited. All materials for acquiring knowledge relative to these subjects, are therefore of especial value.

The flax of Russia differs materially from that produced in either Belgium, Holland, France, Ireland, and the other flax growing countries of Europe. While the fibre is almost always inferior, the Russian flax-seed has the highest reputation. It is a pertinent subject of inquiry—why the produce of the seed sown in its country is not equal to that produced from the seed sown elsewhere? The answer is, that the difference arises from a difference of culture, and also from a difference of soil and climate. It is a fact well known to botanists and fruit growers, that a plant or tree yielding fruit, transfered from the North temperate zone to a Southern portion of the same zone, generally improves in character and strength, being at the same time more hardy than the cognate plants growing originally in the same latitudes.

Before entering into an account of the method of cultivation followed in Russia, we would briefly direct attention to the geological constitution of the part of Russia where the cultivation of flax is prosecuted to the greatest extent. The soil of a great part of Russia rests upon a sand stone of the secondary series, red or gray in color; this rock more or less disintegrated, extends throughout the most fertile portions of the country, from 56° N. L. to 67° N. L., where it terminates. Starting at latitude 56° N., it extends in level tracts upon the Baltic, touching the district of Riga, stretches along the Gulf of Livonia, embraces a great part of the district of St. Petersburg, extending to Lake Onega, the White Sea, and the Gulf of Archangel, from thence it bends to the North-East, and finally terminates about 67° N. L. The greatest width of this deposit, East and West, is between Windau on the Baltic, and Torapetz to the East. The surface comprehends, *first*, all the basin of the river Don; *second*, a great part of the course of the Volga; *third*, a great part of the course of the Onega, even to its mouth; *fourth*, most of the basin of the Dwina, even as far as its entrance into the Gulf of Archangel. The climate of this country, as indicated by the mean temperature, is as follows: In the level country along the Baltic, 52° 50′ N. L., the yearly mean of the thermometer is 46° Fah. Alcan temperature of the winter, 32°; summer, 62°; autumn, 45°. St. Petersburg, situated at 39° 56, has a mean temperature of 38°; in the months of greatest heat the mean temperature is 65°; in the months of greatest cold the mean is 8° 6′.

Archangel is situated upon the Dwina, near its entrance into the White Sea. During ten months of the year, from September to July, all access to this place by water is prevented by ice. The Dwina remains frozen until the month of April or May. On the 11th of June the sun remains above the horizon from 1 h. 27 m. morn., until 10 h. 37 m. eve. On the 11th of December it appears only from 10 h. 9 m. morn., to 1 h. 51 m. noon. This district is included in that zone where the light continues during an entire month, from the commencement of June to the first week in July. To the constant light and heat of this month the production of flax is due.

Odessa, the center of another flax growing district of Russia, is situated upon the Black Sea; Lat. 46° 59′ N., between the mouths of the Dneiper and Dneister. The soil is of the older tertiary formation, designated by Murchisson as the older Caspian. The climate closely resembles that of the South of France.

Although the flax culture is less advanced in Russia than in other parts of Europe, we have reason to believe that it has been known there for centuries, at least in the vicinity of Odessa. In the historical notice of the flax culture of Belgium, given in a preceding chapter, it was stated that the art of cultivating and preparing flax was undoubtedly introduced into Flanders by a nation of people who emigrated from the shores of the Black Sea.

But Lathuania, Livonia, and the provinces of Pleskoff, Novgorod, and Archangel are the districts which at the present day furnish the bulk and better qualities of Russia Flax. In Southern Russia they cultivate but comparatively little flax for the fibre, but considerable for the seed, the exportation of which to foreign countries is rapidly becoming of great importance. The culture of flax in the North, West, and central portions of the empire requires the use of manure, and of thorough plowing and pulverization of the soil; but in the Southern portions of Russia, a single plowing, imperfectly performed in the autumn, without the use of manure, is sufficient preparation for obtaining an excellent crop of flax, especially when the season has been moderately moist. In favorable seasons the product of seed is from 20 to 25 bushels for one, but the average of the whole country is not more than 8 to 12 bushels for every one of seed.

The proprietors who cultivate flax for the seed use the stalks for fuel, not knowing how to turn them to any better account.—They also cut or mow the flax instead of pulling it, which renders it somewhat unsuitable for the production of fibre.

The method of cultivation in that part of Russia where they make but little use of the straw, is as follows: They sow on the virgin soil of the steppes, in the vicinity of Odessa, or upon land which has been cultivated with grain or some other crop the preceeding year. The crop can be repeated in the same soil for two succeeding years, without any inconvenience. The labor of cultivation is extremely simple. They plow to the depth of about six inches once in the autumn. In the spring they harrow with care, and between the 15th of April and the 1st of May they sow broadcast about three English pecks of seed to two and a half acres. When they design to preserve the fibre, they sow about one third more flax. The crop is a certain one if it rains but a very little during the months of May and June. This flax seed is highly esteemed for exportation, and as it sells for highly remunerative prices, viz., from $1 50 to $2 00 per bushel, the culture rapidly increases in southern Russia. In 1830, the amount of seed exported wae 13,000 bushels; in 1838 it had increased to 300,000, in 1839 to 350,000, representing a value of about $600,000. The exportation of flax fibre from this section of country is small, as hand labor is dear, and the population sparce. The small quantity which is prepared is imperfect and low priced. The rotting is made ordinarily with water, but occasionally dew rotting is pursued. The subsequent operations, including that of spinning and weaving, are conducted in a manner equally rude and imperfect, The manufacture of cloth is exceedingly restricted, and is wholly of a domestic character. and the production not exceeding the local consumption.

In the district known as New Russia, the amount of cloth is not sufficient for the home demand, and the deficit is made up by importations from the Northern portions of the Empire.

Scientific Memoranda.

Tubular Bridge in Egypt.—Mr. Stephenson's Tubular Bridge over the Nile, at Benha, will be fit to rank by the side of the imperishable monuments of ancient Egyptian industry. It is to have ten arches, and is to be 870 ft. in length. Unlike the Brittannia Bridge, the railway will pass over the top.

Gold in New Zealand.—The recent report of gold having been discovered in New Zealand proves to have been incorrect. The "Spectator" says the golden dreams connected with the supposed discoveries at Whanganui have speedily been dissipated. The "Governor Grey" arrived on Monday, bringing some specimens of the supposed gold, which were forwarded to Dr. Prendergast, 65th Regiment, who submitted them to the usual chemical test, and who has demonstrated the Whanganui gold to be iron pyrites.

Mirage.—The Kenosha (Mich.) "Telegraph" says a beautiful mirage was witnessed on the lake on Sunday. Vessels were seen at an immense distance, apparently sailing in the air, occasionally duplicated, and sometimes triplicated. The Michigan shore was said to be visible a part of the day, and whilst some insisted on it that they could distinguish the sand hills, trees, and bushes, one interesting chap was sure he heard a Wolverine yell.

On the Corrosive Action of Sugar on Iron and other Metals.—J. H. Gladstone read a paper, at the London Chemical Society, on this subject. The frequently-observed corrosive action of solutions of sugar on iron vessels having led the author to this investigation, he found that if a piece of iron be partially immersed in a solution of pure cane-sugar, and kept in a warm place, the metal becomes corroded about the edge of the liquid, but that portion of the metal which is permanently immersed remains bright. This solution, on being examined, was found to contain protoxyde of iron, and to have a deep red-brown color.—The author believes that a definite compound is formed of sugar and protoxyde of iron.—Experiments were made on the various circumstances under which this action took place, and others were instituted with the view of ascertaining the action of solutions of sugar on other metals. Copper was scarcely acted on at all. Lead was attacked much more readily, especially at an elevated temperature. Zinc was very slowly and but slightly acted upon. Tin was also very slowly attacked. Mercury and silver were not acted upon in the slightest degree.

Poisonous Colored Confectionery.—The London "Lancet" commissioners, in reporting the result of their investigations respecting colored confectionery, express their surprise at the extent to which deadly and virulent poisons are daily made use of by the manufacturers of those articles. One hundred and one samples were analyzed; and of the yellows, seventy contained chromate of lead and colored gamboge; seventy-nine contained cochineal, red-lead, and bi-sulphuret of mercury; eight of the browns contained ferruginous earth, either vandyke, brown, umber, or sienna; two of the purples contained Prussian blue and cochineal; thirty-eight of the blues contained indigo, Prussian blue, Antwerp blue, and a sulphuret of sodium or aluminum; nineteen of the greens contained Brunswick greens, consisting of a mixture of chromate of lead and Prussian blue, verditer or carbonate of copper, Scheele's green or arsenite of copper. The above colors were variously combined in different cases, three and even four poisons occurring in the same parcel of confectionery. In four of the samples the colors were painted on with white lead or carbonate of lead; thirteen of the samples were adulterated with hydrated sulphate of lime; seventeen samples were adulterated with wheat flour, three with potato flour, and one with arrowroot.

Colt's Patent in Congress.

Quite a scene took place in the House of Representatives on the 8th instant, on the bill coming up to authorize the Commissioner of Patents to grant an extension patent to Samuel Colt, for seven years from the 25th of February next, for improvement in fire arms.

"Mr. Clingman, of North Carolina, said—Before the vote is taken on the bill, there should be a call of the House. From extraordinary means resorted to, he had no doubt very large sums of money have been offered to gentlemen to induce them either to vote for the bill or absent themselves. He had no reason to suppose any gentleman would be influenced by such considerations.

Mr. Pratt, of Connecticut, said he should like to know what reasons the gentleman had for making that statement.

Mr. Clingman had no objection to the question. If the House should think proper to raise a committee to investigate the case, he should be ready to give an answer. Nothing had been offered to him, and he did not know whether money had been offered to members themselves, but from information wholly reliable, he had no doubt money had been offered to very near friends of members. It is well known Congress has suffered from allegations of this sort, and therefore he thought it would be very well to have a call of the House before taking a vote. There was no reason, color or pretext for the passage of the bill."

These remarks are copied from the reported rambling discussion on the occasion, to show its tendency. A number of other members took part in the debate, and finally a committee of investigation, consisting of the following members, were appointed:—Messrs. Letcher, Thurston, Clingman, Eliot, of Mass., Eddy, Cutting, and Zollicoffer. Mr. Clingman has since declined being one of the committee, with a view, it is presumed, of being more at liberty to present testimony in the case.

The charge was not made that members were bribed, but that friends of members supposed to have influence with them had received *considerations* to exert a *pressure* upon members to pass the bill. In all likelihood, the question of investigation will end in smoke, but if it does, Mr. Clingman deserves the compliment of having done his duty.

Death of the Inventor of the Celebrated American Lock.

Robert Newell, long and widely known as the inventor of the Parautoptic Lock, which, at the World's Fair, London, and in this country, created among mechanics and scientific men generally an intense sensation, died in this city of cholera, on the 19th inst. He had been slightly indisposed for some days previous to his dissolution, and had been confined to his house for a week by a mild diarrhœa. Cholera, in a sporadic form, subsequently set in, and, acting upon a constitution slightly debilitated, could not be arrested.

Paine's Light Again.

The Worcester "Spy" states that this "invaluable discovery" is about to be introduced to the public, the difficulties arising from electrical explosions having been, as we are informed, entirely overcome. It further says, that a large company of the leading capitalists of New York, has been formed, to bring out and operate the invention. We admire the unflinching perseverance of the "Spy," it certainly deserves a prize for the amount of *light* which it has thrown upon this *light*, for the past four years, but like the boy in the fable, it has cried "wolf" too often.

Metallic Oil for Machinery.

On another page will be found the advertisement of Yockney & Co., manufacturers of Cumberland Brother's Metallic Oil for lubricating machinery. We have examined a number of certificates of firms which have used this oil—such as the Allaire Works and the Fulton Works—Pease & Murphy of this city, and they give it a very high character. It is considered to be superior to sperm oil, and one journal in the Allaire Works having a velocity of 2000 revolutions, which required to be lubricated with sperm three times per diem, required only one application of the metallic oil during the same period.

Improved Gold Separator.

A recent addition has been made to the inventions which have reference to the extensive gold-mining operations of the day, by James Perry, of this city. It is a Gold Separator, most of whose features are common to those of other separators already in use. What the inventor claims, as new, is the combination of a screw, a perforated plate, two inclined plates, and a pocket, in such a way as to separate all the golden particles from the debris and other impurities so gradually and yet so certainly as to prevent the too usual waste from the separating process. This machine, with its ingenious appliances, is well calculated to make one realize the great improvements which have been made upon the pan and cradle processes so generally used but a little while ago.

A mountain of Spanish brown, estimated to be sufficient to supply the world for centuries is reported to have been discovered in the vicinity of Elytown, Alabama.

© 1854 SCIENTIFIC AMERICAN, INC

Uses of Steatite or Soapstone.

Having recently alluded to the new employment of the above named material for building purposes, we have no doubt but it will interest many of our readers to know something more of the other purposes for which it has been employed, for a number of years.

Steatite, or to call it by its more familiar name—*soapstone*, is a kind of soapy marl, or talc, sometimes white, at others green, or gray, and more rarely red or yellow. It is composed of silex, alumina, magnesia, oxyd of iron, and water, but it varies in different localities. As it requires a very high heat for fusion, and is cut or wrought with great facility, very good crucibles can be made of it, which fire hardens and litharge penetrates very easily. It is employed for molds in metallic castings. It is used in England in the manufacture of porcelain. It has been made into Cameos, to which has been given a fine brilliancy by heat, and such a degree of hardness as to give sparks, with steel. Having a great affinity for glass, steatite, reduced to very fine powder, answers very well when mixed with other colors, for painting on glass. It is used also as a kind of sympathetic pencil for writing on glass, leaving no traces when the glass is rubbed with woolen cloth, but becoming again visible by breathing freely upon it, and disappearing again as the glass becomes dry. Workers and embroiderers of silk prefer it to chalk for tracing, because it is more durable and does not affect the colors of the stuff. As steatite has the property of uniting with oils and fatty substances, it enters principally into the composition of the balls used for cleaning silk and woollen stuffs. It is the basis also of some pigments. It gives a fine brilliancy to marble, to serpentine and gypseous stones. Mixed with oil, it is used to polish glass and metallic mirrors. If newly prepared leather be powdered with it and allowed to dry, it gives it, when rubbed with horn, a very fine lustre. Steatite is employed for glazing paper, by being spread over it in very fine powder, or better by being mixed with the coloring matter, and then glazing by rubbing with a brush. The power of steatite, from its unctuosity is one of the substances which gives the easiest play to vises and screws, and diminishes friction in wheels. Mixed with tallow it furnishes a very favorable material for preserving machinery.

Steatite is easily cut with a saw, turned in a lathe, and smoothed with a plane. It may therefore be worked into any shape, and afterwards if necessary be rendered very hard.—When the artist has finished his design he places it in a covered crucible, surrounds the crucible with charcoal in a furnace, raises the heat gradually, keeps it for two or three hours in nearly a white heat and allows it to cool slowly. When it comes out, it is very hard.

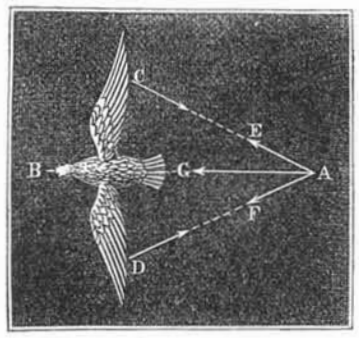
Some specimens of steatite acquire a milk-white appearance by exposure to heat; those which are colored assume a gray or reddish tint, but they may be variously colored by the aid of oily, alcoholic, acid or alkaline solutions. Colors that dissolve in amber varnish, such as verdigrise, ochre, &c., color steatite, when heated by charcoal. Colors dissolved in spirits of turpentine are the most lively. Solutions of carthamus (safforn flower) gamboge, campeachy wood, dragon's blood, &c., in spirits of wine, color steatite by steeping it in them several hours. Solution of gold in aqua regia, gives a purple color, of a shade depending on its strength. Muriate of silver colors it black when aided by sulphuric acid, sulphate of indigo—a grayish blue. If steatites, colored by nitro-muriate of gold, or muriate of silver, be exposed to a bright flame, it assumes the metallic color of gold or silver.

When the stone is heated, colors dissolved in acids are rapidly and finely attached to it, and hence a cameo ground, of any particular color, is easily obtained.

When the stone is baked, it is polished, as usual, with emery, tripoli, or tin putty. It acquires much brilliancy, resembling agate, jasper, calcedony, &c. It is easy from these facts to infer, that the engraver may avail himself of this substance, on account of its softness, since he may perform upon it one day as much as he could do upon hard stones in a week; and when it has passed through the fire, his work acquires a hardness and durability almost unlimited.

On Birds Flying.

An article appeared in the "Scientific American" of July 1st, page 334 (signed J. B. C., of Jackson, Tenn.,) in which exceptions were taken to the opinions expressed by a correspondent (J. W.) on page 243, on the above subject, which were in answer to a previous inquiry on page 226, as to the cause of birds flying, in which J. B. C. said, "It cannot be demonstrated by the known laws of mechanics, that birds can fly, yet birds do fly; therefore birds are in the possession of a power unknown to mechanicians." Here it is assumed that birds do not fly by any of the known laws of mechanics, and he asks for a *demonstration*, not an opinion. Now in all fair scientific discussion, the right is denied to those who adduce phenomena opposed to the recognised laws of nature, to demand an explanation of the cause from others, and yet J. B. C. not only demands this, but lays down the only proof that will be a demonstration to *him*. He says, in his last communication, "if J. W. will ascertain the velocity with which a bird moves, and its weight, he may, by taking the size of its wing, and the distance and frequency of the flap, ascertain the mechanical force exerted against the air to impel the bird forward and sustain it in the air." This he should do himself and yet what a mixed unscientific and confused formula he would have to present. The velocity with which a bird moves multiplied into its weight would be an exponent itself of its mechanical force; the distance and frequency of the flap is involved in the velocity of the bird's motion; and what the size of the wing has to do with the question, is something totally inexplicable. By this rule it might be demonstrated that a man could fly, by ascertaining his velocity through the air, his weight, the length of his legs, and the number and distance of his steps. Birds and men are not altogether controlled by the known laws of me-



chanics, for they are not wholly governed by inertia, inasmuch as they have power in themselves to increase and lessen their velocity and change their direction, thus showing that there are other powers in this world than mere mechanical forces. Yet, at the same time, it is also true that men move and birds fly by the known laws of mechanics. But as it relates to animate beings, every person can easily see that the problem of the composition of forces, although easily solved by construction is extremely complex in calculation, especially when the element of *time* is added and the forces are of a *constantly varying magnitude*, as is especially the case in the flight of birds. In fact it is scarcely possible to arrive at some of the simplest results of its application.

Birds have a figure symmetrical with respect to a vertical plane, A B, in the figure, which passes through the body. When they fly, their wings execute symmetrical movements, and strike the air with equal pressures. The resistance of the air to the pressure of the wings is perpendicular to their surface. Hence the direction of the resultant will be found by the parallelogram of forces, for which purpose draw C A and D A perpendicular to the surfaces of the two wings, these lines representing the directions of the forces by which the bird presses backward with each wing; or in other words, A C and A D are the directions of the resistances exerted by the air against the two wings; and neither of these pressures does (when the wings are in this position) tend to impel the bird straight forward; but their *resultant* does so, for if the wings be similarly extended, and act with equal force, the lines A C and A D will make equal angles with the line A B, passing through the center of the bird; and two lines, representing the intensities of the two pressures, as A E and A F, being equal, the diagonal A G will coincide with that line, and the motion of the bird will be directly forward.

A person in swimming impels himself in a direction perpendicular to the soles of his feet and the palms of his hands. If these forces be equal on either side of the body, the resultant is a line passing through the center of his body. A man swims in water by the same laws that a bird swims in the air; but by the rule of J. B. C., no person could ever arrive at a demonstration of this. In the living organism, the forces are constantly varying in magnitude. The difficulties presented for nice calculations in the flight of a vulture, are therefore almost insurmountable; they involve great trouble, toil, and expense. If the sailing of a vulture through the air, for several minutes, without flapping its wings, is a feat (as suggested by J. B. C., on page 334,) that cannot be proven by the laws of mechanics, then he should be able to prove that birds can fly without moving their wings at all. The demonstration presented in the annexed figure, of the method by which birds fly, is founded on the assumption that they are amenable to the laws of mechanics, and not above them, and that they do flap their wings and employ force to propel them, is proof positive that they do fly by the known laws of mechanics. The comparison of the flight of a kite, to that of a bird, to explain how birds fly, as has been done by J. W. on page 243, is not correct, certainly. There is no similarity between the forces employed to produce motion; a kite cannot fly in the strict sense of the term,—it is merely sustained in its position by two opposing pressures—the string and the wind—according to the equilibrium of forces, two opposing equal pressures produce equilibrium. A vulture has the power in itself of doubling and tripling its velocity above minimum, for a second or more of time; therefore it is easy to see, that if by a few powerful flaps of its wings if it triples its velocity for two seconds, it can sail, without flapping its wings for eight seconds afterwards, by the law of *vis inertia*. To this law the motionless flight of vultures, eagles, &c., for a considerable period, is to be attributed, but the difficulties presented in making correct (there is a great deal in the word *correct*, too often overlooked,) observations and calculations, in the flight of such birds, may have led some to imagine, that they possess some unknown power different from that which moves men and animals. For such a belief there is not the shadow of a foundation—no evidence of such an unknown *power* being in existence has ever been presented, and never will. Those who believe there is such a power should be ready with positive demonstrations of its existence, when they interrogate or criticise others respecting sueh phenomena. *

(For the Scientific American.)

Chlorine and Anti-Chlorine.

A writer upon "Anti-Chlorine," in a recent number of the "Scientific American," (page 314,) has fallen into two or three errors, the correction of which may not be unprofitable to the author in question, if it should prove altogether unnecessary for any of your readers. The article bears date from Providence, and has a particularly "scientific air" about it, from the employment of chemical formulæ. The errors and their corrections are as follows:—

1st. There is no mistake in the editorial article criticised, in regard to the inferiority of goods bleached by chlorine, as compared with goods bleached by sunlight. It is admitted by the most accomplished and experienced bleachers. If it were not, the proof of injury is in universal experience, of which the prevailing public opinion is the evidence.

2nd. "anti-chlorine" is not "*sulphide of sodium*," but "*sulphite of soda*," not Na. S. (nor Na. $So.^2$, as the writer expresses sulphide of sodium,) but Na. O. $So.^2$

3rd. The office of "anti-chlorine" is not to *decompose* chlorine, which is an element, and of course does not admit of decomposition, but to *neutralize* it.

4th. Sulphuric acid is not employed to decompose or neutralize chlorine, but first to increase the efficiency of bleaching liquor, with which the fiber is saturated, by setting the chlorine free, and in the second place to dissolve out the lime and oxyd of iron that would otherwise remain more or less in the goods.

5th. The formula illustrating the action of anti-chlorine, is not Cl. Ca. + $So.^2Na.$ = $So.^2Na.$ + Na. Cl.; which means nothing; Cl.Ca. is not the formula for bleaching salt. Its formula is Ca. O. Cl. O. + Ca. Cl., and when brought in contact with an acid, as sulphuric acid, for example, the decomposition that results is the following: Ca. O. Cl. O + Ca. Cl. + 2(H.O. $So.^3$) = 2(Ca. O. $So.^3$) + 2 H.O. + 2 Cl. The chlorine thus disengaged may be neutralized by sulphite of soda, as follows: Cl. + Na. O. $So.^2$ + H.O. = Na.O. $So.^3$ + H. Cl.

The injury to cotton fabrics by chlorine bleaching is not generally remarked. Those only who have occasion to compare and use unbleached cotton with muslins bleached by chlorine, would notice it. Any bleacher will acknowledge that from time to time goods are returned upon his hands on account of the injury done to them in bleaching. Is it to be supposed that when attention is aroused only by the goods falling in pieces, that all intermediate shades of injury are escaped in the ordinary bleaching?

Any person curious in such matters may satisfy himself of the presence of chlorine in goods as they issue from the washing apparatus after passing through the sour, by applying to them a drop of a solution of starch to which a little iodide of potassium in solution has been added, when a blue stain will appear.

In the case of coarser linens the presence of chlorine is sometimes so obvious even after goods have passed through the washing, drying, folding, packing, transportation and sale, as to affect the sense of smell.

The author of the article above referred to is misinformed. A somewhat extended investigation of the "anti-chlorine" of Mr. Roth, has satisfied me of its great value as an agent for neutralizing chlorine. N.

A Whale Captured off Nantucket.

The New Bedford "Standard" of the 7th inst., gives the following account of a recent whale capture off Nantucket Bar:

"The schooner "Wm. P. Dolliver," Capt. McGuire, which returned a few days ago from a very successful whaling cruise of two months, sailed again yesterday on a similar expedition among the shoals around the island. The vessel had proceeded but about two miles from the Bay, and was lying "off and on," waiting for a boat to come off having the captain on board, when a large fin-back whale was discovered near by, lazily moving along, apparently unmindful of the dangers that threatened.—His seeming reverie was soon disturbed, however, by the entrance of a bomb lance into his huge side from the vessel's deck, which immediately turned the current of his thoughts in another direction, and caused him to "turn up" in a very few minutes. He sunk in seven fathoms water, but by the aid of grapnels was raised again to the surface, and in the evening was towed into the harbor by the steamer "Massachusetts." This morning the whale was hauled up to the wharf to afford an opportunity to those who wished to view the wonders of the mighty deep. His length is about sixty feet, but he will not, probably, yield over twenty or thirty barrels of oil, the blubber being very thin."

Brooklyn City Railroads.

Eight cars were put upon the new City Railroad tracks in Brooklyn, on Saturday the 1st inst., and run over all the routes as far as completed. Runs were made on the Sand's street, Myrtle avenue, Fulton avenue, and Court street routes, as far as completed; and with some trifling defects at the curves every thing was found to work remarkably well. Brooklyn has railroads now running all over the city for the accommodation of its sensible and intelligent citizens.

© 1854 SCIENTIFIC AMERICAN, INC

New Inventions.

Mechanical Union of Metals.

There are several sorts of manufactures in which processes for the union of two or more pieces of metal in mechanical contact are indispensable, and in which the need of improved facilities has been felt. Among the branches of manufactures alluded to is that of musical instruments, such as melodeons and others of their general class. A patent for an improvement in the ordinary punching press has been applied for, whereby this want is likely to be pretty fully satisfied. The improvement under notice causes a portion of a thicker plate to be displaced and protruded through a thinner one, in which it fits very tightly. The upsetting or rivetting of the protruded metal is rendered unnecessary, for many purposes, by a peculiarity in the relative sizes of the punch and die, because, as the inventor assures the public, when these implements are constructed upon his plan, the two pieces of metal are so tightly and firmly united as to be separated only with greater force than mere use or even accidents would be likely to apply. But a feature in this improvement is a concavity in the face of the punch-holder, which permits the compression of the metal towards the punch, when the upsetting process is requisite. The inventor of this truly ingenious machine is Jeremiah Carhart, of this city, who has an extensive manufactory of melodeons in 13th st., where the practical tests of its capacity are such as to render any more minute description of it unnecessary at present.

Chain Link Machine.

One of the most novel machines now awaiting a patent, is that whose purpose is indicated by our caption, whereof Charles W. Dickinson, of Newark, N. J., is the inventor. This is a complex yet easily comprehended piece of mechanism, the peculiarity of which consists in such a series of punches and dies as, by operating in proper turn upon pieces of metal, gradually transform them into rings or links without the necessity of cessation or manual interference until they are completed for use. After the link is cut out and partly formed by the co-operation of the first punch and die, it is passed to a pair of dies, by which it is finished. The lowest of this pair of dies, by being constructed in two parts, one of which is movable, is made to perform the additional duty of expelling the finished ring from the machine. This invention, whose ingenuity no one will venture to question, is put forward by the inventor as particularly and advantageously applicable to the manufacture of watch chains. But it seems the dies and punches can be so varied in form and action as to cut and shape rings or links for various other purposes that may be desirable.

Spring Bed Bottoms.

Great inconvenience has been experienced by housewives in cleansing spring-bottom beds of the vermin that take up their local habitation therein, because of the springs being closed up between continuous pieces of sacking and immovably attached to a frame. Wendell Wright, of this city, has just put them under obligations (that is, the ladies—not the bugs) by a proposed improvement for which he has applied for a patent. His plan is the use of separate strips of wood, instead of the customary sheet of canvas. The spiral springs are seated in the bars of wood, and are attached to guide rods which pass through holes, and play up and down in them. The different sections of wood are stayed by rods connecting with the guide rods, so as to keep the slats and springs in their relative places. Not only can the bottom be readily cleaned, because being capable of removal in independent sections, but that great desideratum of sleeping furniture, ventilation, is provided for with apertures through the boards. Mr. Wright assures those interested that his plan allows the substitution of the ordinary spiral spring where the double conical spring has been supposed indispensable, thus saving needless expense.

WADE'S LUBRICATOR.

The annexed engravings represent an improved Lubricator, for which a patent was granted to Robert M. Wade, of Wadesville, Va., on the 6th of June, 1854.

Figure 1 is a front elevation of the lubricator; figure 2 is a section on line, $x\ x$, of fig. 1, and perpendicular to the axis of the cylinder. Similar letters of reference denote like parts.

The object of the invention is to so arrange the several parts of the lubricator that the engineer may supply the steam cylinders with oil without leaving his stand for that purpose, either while the engine is running or standing, without any danger of the oil being blown out by the steam.

A is a hollow cylinder to contain the oil; the outer surface of this cylinder is ground so as to closely fit the inner surface of the jacket, B, in which it is secured by the end plate, L, and screw nut, K, which turn with it. Leading from the jacket, B, are the passages, C D, the former leading to the cup or reservoir, E, and the latter to the steam cylinder, to which the apparatus is attached by the screw thread, *f*. The cylinder, A, is furnished with two apertures, *b* and *c*, the former intended to admit the oil to the cylinder, and the latter for the delivery of the same through the passage, *d*. The apertures are so situated, as seen in fig. 2, that when one, *c*, is in communication with the passage, C, the other will be closed by the inner surface of the jacket, B, and all communication with the steam cylinder cut off, while if the aperture, *b*, communicates with the passage, *d*, and the oil flow to the steam cylinder, the outer surface of the cylinder, A, will close the passage, C, and all communication between the cup, E, and the cylinder, A, will be cut off. The outer portion of the cylinder, A, is provided with a crank or arm, F, for turning said cylinder, the amplitude of the movements being governed by the screw, P, the end of which plays in the notch, H, in the front of the jacket, B, and the arrangement is such that when the said screw is against either side of the notch, one of the apertures, *c b*, will perform its functions. The screw, P, also answers to regulate the tightness of the cylinder, A, in its seat, as by turning the screw to the right the end is forced against the bottom of the notch, H, and prevents the cylinder from being drawn too tight into the jacket.

The top of the cup, E, is closed with a cap hinged to the side of the cup and shutting close inside: but a sliding or any other suitable top may be used.

From the extremity of the lever, F, a rod, R, is carried to the engineer's stand, so as to place the operation of the lubricator entirely under his control. This effective action of the apparatus, by the slight movement of the lever, F, is due to the construction of the cylinder, A, with the two apertures, *b* and *c*, relatively situated as described. For with but one aperture, as lubricators are made, it would be impossible to operate them with a rod, as the operating position of the opening at both feed and discharge would necessarily be a dead point of the crank and rod, making the rotation of the cylinder, A, by power applied to the rod, an impossibility.

The advantages of this lubricator are its simplicity, positive action, and durability, the movement of the working part being so slight it is not liable to wear or leak steam, and is equally applicable to marine, locomotive, or stationary engines.

Any information as regards agencies or rights may be obtained by letter addressed to the patentee at Wadesville, Clark Co., Va.

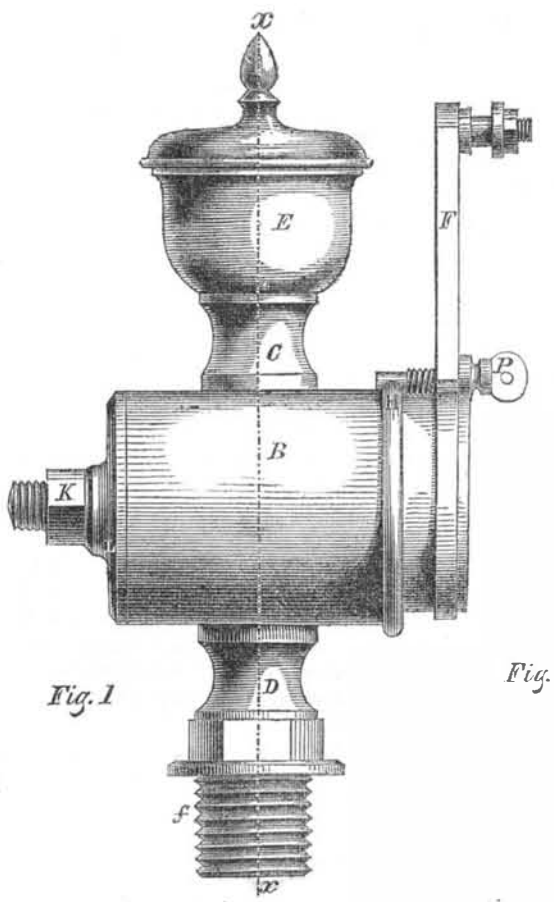


Fig. 1

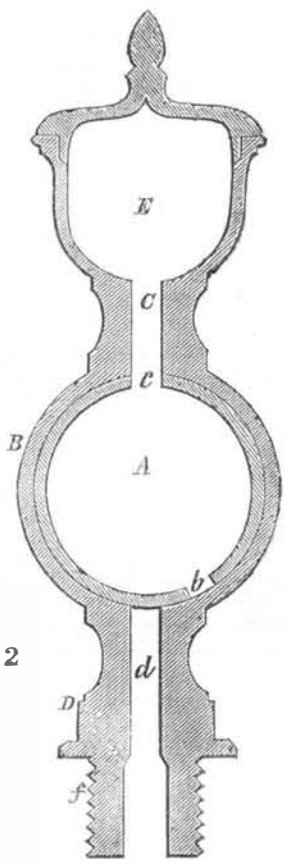
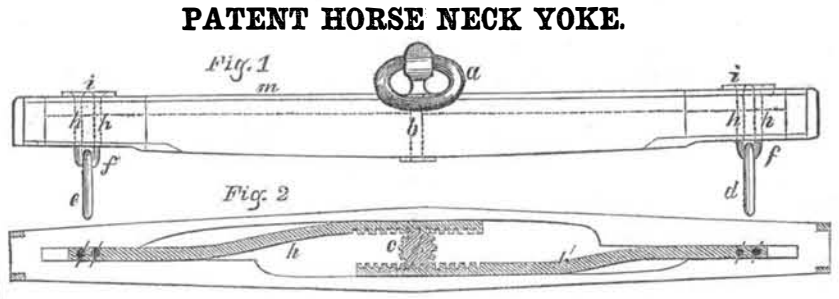


Fig. 2

PATENT HORSE NECK YOKE.



A patent was obtained on the 30th of last May, by John R. Pierce, of Castile, Wyoming Co., N. Y., for an improvement in Neck Yokes for horses, of which the following figures are a presentation, fig. 1 being a side view, and fig. 2 a longitudinal section perpendicular to the axis of the bolt, *b*. Similar letters refer to like parts.

The object of the invention is to furnish points for the attachment of the breast straps, which shall be movable longitudinally on the yoke, to accommodate the side movement of one or both horses; the attachment being so connected that the movement of one will produce a similar movement of equal extent in the other, thereby causing the attachments to continue at all times at equal distances on each side of the carriage pole. The invention consists in forming the yoke with a cavity sufficiently large to contain the movable parts, namely two racks and a pinion upon the main bolt, the racks carrying the attaching bolts, and being otherwise arranged, as will be hereafter set forth.

In the figure, *a* is the main ring, held by the bolt, *b*, on which is the small pinion, *c*, moving loosely upon it. The attaching rings, *d* and *e*, are held by the eyes, *f*, on the racks, *h h'*, which racks mesh into the opposite sides of the pinion, *c*; the eyes, *f*, pass through slots in the top of the yoke, while the racks are kept in position by the plates, *i*, secured to the racks by pins, *p*, which move in slots on the under side of the yoke. The lower side of the yoke has a metal face, which being screwed to the wooden shell, strengthens the yoke and secures the racks.

The horses being attached to the yoke in the usual manner, and driven forward, any movement of one of the attaching rings revolves the pinion, *c*, causing the rack carrying the other ring to move longitudinally the same distance in the opposite direction: thus enabling the horses to move either from or towards each other without deranging the position of the pole; the attaching rings being by this arrangement always at equal distances from the main bolt.

More information may be obtained of this invention by letter addressed to the patentee, at Castile, N. Y.

Improved Quartz Crusher.

Samuel Gardiner, Jr., of this city, has sent in the specification of an improvement in the machinery employed in crushing auriferous quartz, or other metal-bearing rocks. It consists principally of the addition of a new motion to that from which the crushing power is now derived. In other words, he suggests the combination of the separate processes of crushing and pulverizing, so that his single machine may complete the preparation of the ore, in stead of two. This he proposes to accomplish by giving a rotary motion to the stampers already in use, without interfering with their pumping motion. The stampers of crushing machines are apt to wear very fast and expensively on the feeding size. This Mr. Gardiner's improvement professes to obviate, and also to give further efficiency by adapting the machinery to the management of wet and dry materials, equally well.

Improved Harness Buckle.

Much peril as well as painful annoyance has resulted from the old-fashioned harness buckles by reason of their liability to break or draw out during accidents, which their own defects not unfrequently cause, and also from the difficulty of release to falling horses, occasioned by the tightening force of the animal's weight. Christian and Lewis B. Oyster, of Chambersburg, Pa., have jointly claimed an improvement in buckles, which will completely revolutionize the principle of their action, if found applicable as designed by the inventors. It is proposed to dispense entirely with the tongue holes in traces and other straps, and to rivet the tongue to the leather instead of the buckle. The bar of the buckle is furnished with a number of rachet-shaped teeth or stops, and corresponding cavities are cut in the tongue, but having reversed catches. The desired length of the trace is adjusted by bringing these teeth together at a given point, and securing them with a set screw. The screw puts the unhitching of the horse under the instantaneous control of the driver in cases of falls or other perilous entanglements.

A correspondent wishes to know the best plan for hardening shovels cut from rolled shovel plate, and heated without blast in a common furnace? By heating shovels to a white heat, they spring so much that they are often broken in the straightening; and if heated at a lower heat they are too soft when they come from the dies.

© 1854 SCIENTIFIC AMERICAN, INC

Scientific American.

NEW YORK, JULY 22, 1854.

Summer Drinks.

There can be no doubt, we think, that as much sickness is caused during warm weather from imprudence in drinking, as eating. Cold ice-water taken hurriedly into an overheated body, is liable to check the flow of life's red current, and stop "the wheel at the cistern;" death from such a cause is easily accounted for. Other causes of disease and death, no less simple, but somewhat less apparent, are not uncommon, and on that account are more to be guarded against. The use of acidulated soda and aerated cold waters, so common during warm weather, by all classes, is very dangerous to health. Prof. Doremus, of this city, has published an article on this subject in the "American Medical Monthly," not so much to expose the injurious effects of using such drinks in themselves, as to direct attention to the kind of vessels which are employed to contain them. Being led, by the illness of several friends from drinking the soda water sold as a favorite beverage, to believe there was some poisonous impregnation in the same, he analized several quantities of it, and found both copper and lead in them. The copper was taken up from the soda water condensers, and the lead from the fountain pipes. Both of these metals are poisonous, and highly injurious to health, and Prof. Doremus deserves the thanks of the community for thus exposing such a fruitful cause of disease. Let him devote his attention to exposing such evils, and he will really prove a benefactor to his fellow men. There is a wide field open to him in this city, for the display of his chemical skill and learning, in analysing various kinds of articles in common use, such as tea, coffee, vinegar, spices, starch, milk, &c., &c., and exposing the frauds that are universally and daily perpetrated on the public; this would bring him more solid and lasting honor than making —as he did last winter—minature worlds out of drops of oil, astonishing himself and others by the conclusive effects of incongruous comparisons. We believe every word that Prof. Doremus has uttered respecting the common soda water sold in our streets, and in houses of refreshment, being impregnated with both copper and lead, and we are also of the opinion that many persons have lost both their health and life in consequence of drinking such beverages. To prevent soda water being impregnated with these poisonous metals, he recommends stone, and anti-corrosive metallic fountains and pipes. But, while we heartily agree with him in this view of the case, we would not be doing our duty to the public, did we not warn the people against the use of common soda waters in any shape, as a beverage, except upon very rare occasions. They are as injurious to physical health as ardent spirits; they are unnatural, and certainly unnecessary when good water can be obtained. Better pay six cents for a glass of good water that three cents for a glass of soda water.—These are our opinions; they have been formed from careful observation and close reasoning. We know a number of cases of injury to health, from drinking artificial summer drinks, and especially, that of an acquaintance who died last Spring, after suffering for a number of years from ill health, caused by a too free indulgence in soda water during a very warm summer. By the term "Soda-water," we do not mean artificial drinks make principally of this alkaline substance; but we use the term, as it is generally applied, to the common, well-known artificial drinks sold as beverages during warm weather. Drinks composed of an alkali, and an acid—such as seidlitz powders, are very pleasant, but they should never be used as beverages; there is nothing like the pure water, as a drink for man.

But cold water also requires to be drank with prudence, for it too, incautiously used, is as dangerous to health and life as a deadly poison. Every person should learn to subdue the desires to a sound judgement, so as to drink cautiously while warm, and of that beverage only which experience and common sense teaches us is most conducive to health, under all circumstances and in all conditions of life.

Sugar Refining Pans.

We do not use extravagant language when we say, that no greater benefits have been conferred upon the civilized nations of the earth, by any modern inventions or improvements, than those which have been applied to the refining of sugar. Sugar is employed for so many culinary purposes, is so universally used, so convenient, nutricious, and useful, that neither tea, coffee, nor any such substances can compare with it for a moment. As a preservative, it occupies a position akin to salt, but unlike that substance, it is also a most useful respiratory food. At one time, and that not many years ago, refined sugars were very high in price, but now they are comparatively cheap. Instead of the coarse, impure, sand-like sugar which was so universal a few years ago, nothing is used and nothing is seen now for sale but that which is beautiful, clear, and crystalline. To the poor especially, cheap refined sugars have proved to be the greatest sweetners of their bitter cup, and for such blessings, all should feel grateful. The "Vacuum Pan," applied to the evaporation of sugar, was a grand achievement. By the older plan of evaporating sugar in open pans, it was very liable to be burned and spoiled, by high heat. After that, steam was introduced in a coil of pipe to evaporate in the open pan, and the discoloring of the sugar was prevented, but the process was tedious, and almost impracticable, inasmuch as the final heat for crystallization is required to be about 240°—a temperature almost, if not quite, impossible to obtain from high pressure steam operating on water in an open pan.

The great improvement was the application of the "Vacuum Pan," heated with steam—a double coil of pipe, through which circulates the steam, being placed in the bottom—and the moisture drawn off by one or two air pumps, like those employed in the condenser of a steam engine. The pan being covered, and a vacuum maintained inside, the sugar syrup boils at a very low temperature—about 180°—and thus no discoloration of it can take place. By the old plan, also, a great deal of the saccharine matter, now converted into good lump and crystal sugar, passed off in a state of molasses, and thus more sugar is made from a certain quantity of raw sugar by the vacuum pan, as well as a better quality, at less cost.

The city of New York holds the first rank perhaps, in the world, for refining sugar, and it has been brought to a state of perfection unsurpassed in any country. This is equally true both as it respects the process and apparatus, and although some of our sugar manufacturers use vacuum pans made abroad, we cannot but believe that it is owing to their ignorance of superior kinds being made at home.

Last week we embraced the opportunity of examining a very large Vacuum Pan at the manufactory of John Benson, Brooklyn, for a large new Sugar Refinery in the city of Montreal, and felt not a little proud of such a piece of workmanship being made here. The Pan is known as "Benson & Day's patent," and was illustrated on page 113, Vol. 5, "Scientific American." Since that time it has been in operation in some of the large plantations of Cuba, and it holds, we believe, the first rank for its facile means of concentrating the cane juice, as well as for the greater quantity of sugar produced from the juice, in comparison with other apparatuses. The new pan referred to is made entirely of copper, and is complete in every part; it is eight feet in diameter, and seven feet three inches deep, and capable of containing 1300 gallons, which will produce 115 sugar loaves, besides skimmings, &c. Such a Vacuum Pan is well worth going some distance to see. It is highly creditable to the genius and skill of our Brooklyn mechanics, that they have obtained a preference in this apparatus; for, as we understand, the person who is to conduct the Sugar Refinery in Montreal is well acquainted with the different kinds of sugar pans used in Europe and America.

Crystal Palace Notes.

By express invitation, a number of gentlemen, (not *large*, as our daily papers have it,) assembled at the Crystal Palace, on the afternoon of Tuesday the 11th inst., to witness the testing of two model Bridges, which had been on exhibition for some time. They were the Arch Truss Bridge of Henry Lanergan, of Boston, Mass., and the Uncle Sam Bridge, by Hammond Howe, of Cincinnati, O. Each model was of 16 feet span and 1 foot deep, and built of white pine. The Uncle Sam model weighed 64 pounds, and the Arch Truss 61 pounds. The inventor of the former had announced that his model would sustain twice the weight of the latter, or be broken in the attempt. The weight on the Arch Truss was from time to time increased until three thousand and four pounds and a half were put upon it. The weight on the "Uncle Sam" was then increased to six thousand and sixteen pounds. For a few moments the bridge sustained this immense pressure—nearly a hundred times its own weight—but soon after the timbers broke. Subsequently about five hundred pounds more weight was added to the pressure on the Arch Truss bridge, near the point of bearing, but without breaking it; its strength was not tested further.

The Arch Truss Bridge contains much less timber than the "Uncle Sam," and can be built for less cost. It would have pleased us better, if its owner had also tested it to the maximum of its power. In not doing so, he displayed something like fear to show what pressure it really could stand. The bridge of Howe is a good one—there can be no doubt of this, but its construction must be expensive.

The experiment of testing these bridges was any thing but well conducted. It took three mortal hours of tiresome hanging on, witnessing the weighing of huge bars of lead and iron, and then laid on the models before the experiment was finished. The whole of the business might have been cleverly done in half an hour. All things for conducting mechanical experiments, should be ready at the hour appointed for those who have been invited to witness the same. We like to see such things done smartly, and heartily dislike such dilly-dallying as was displayed in the Crystal Palace on this occasion.

Barnum has Resigned.—At a meeting of the Directors of the Crystal Palace, on the 10th inst., P. T. Barnum gave in his resignation as President. His reasons for so doing is stated to be "ill health," caused by over-exertion in endeavoring to resuscitate the affairs of the Association. He really has labored nobly and spiritedly for this purpose, and deserves great praise for what he has done. His resignation was accepted, and J. H. White was elected President, *pro tem*. It has been resolved to close the Exhibition on the 31st of October next, and to appoint a committee with power to dispose of the property of the Association, deliverable on or after the 1st of next November. What will be done with the building is the most prominent question that now presents itself to us. Had the original managers been men of good judgment in such matters, they would have erected a building, as we suggested, that could easily have been removed, and re-converted into buildings.

The Ailanthus Tree.

Fashion seems to rule too much among our people, it is carried out into everything, and sometimes in violation of common sense and good taste. Thus, a few years ago, the ailanthus tree was set up by somebody to be the most beautiful and best tree in the world for planting in avenues and as a shade tree for streets, and soon a few conspicuous persons in some place, planted a number of them, and thus became the leaders of a shade-tree fashion, which was soon copied by so many in different parts of our country, that the ailanthus has become king of the sidewalk. Two years ago, the eminent Mr. Downing, who lost his life by the burning of the "Henry Clay," came out in a searching article against the ailanthus, accusing it of possessing an offensive odor, and other bad qualities. This was striking into the fashionable ailanthus with a sharp knife, but our people were just ready for another fashionable change, and so, "down with the ailanthus," has become the watchword and reply from one end of the country to another. We think the ailanthus is a very beautiful tree, and cannot join in the present "hue and cry" against it, still we must say that there is a great deal of truth in the following remarks on the subject, by a correspondent of the Washington "Sentinel:"

"There is a strange passion among us for exotics; while all the world, excepting ourselves, admire the splendor and variety of our native forest trees, we as perversely admire and import every species of worm eaten-tree. The Lombardy poplar, elm, linden, &c., &c., *ad infinitum*, all of which are more or less subject to worms, while our own native forest trees are more beautiful than any, and little liable to suffer by the worm."

From personal observation, however, we judge the ailanthus to have one quality superior to that of all other trees known to us, namely, it is never infested with caterpillars and obnoxious insects.

The Steam-Frigate San Jacinto.

We learn by our Philadelphia cotemporaries that this Steam-frigate has returned from her trial trip of a week at sea, and to us it appears, that with all her new machinery, she is anything but a creditable affair to our country, and the present improved state of Marine Engineering. It is stated, that she made eight knots an hour, and that her speed, according to the "Ledger," was not tested during the trial, the coal on board being of the most wretched description, but with good coal she will make fully 9 knots per hour, a far higher speed than any screw steamer in the British Navy." The latter statement is not correct; there are screw steamers in the British Navy which have made eleven, twelve, and thirteen knots an hour, and there is no reason why ours should not do as well. The bad coal in the trip exhibits an amount of inexcusable carelessness in those whose duty it was to look after it. The new machinery was furnished by Merrick & Sons Philadelphia. We would like to know the entire cost of this unfortunate steam-frigate, it cannot be far from a million of dollars.

Patent Claims.

The present list of patent claims, on another page, is the largest that has ever been published or issued for one week. Incredible as it may appear, *twenty-one of the patents* in the list were obtained through our agency. The Patent Office is now in a very efficient state, and the commissioners, examiners, clerks, &c., deserve great credit for the faithfulness, ability, and industry which they display.

By faithful and prompt attention to the interests of inventors, our business in this line has grown up to be the most extensive in this or any other country. We are about increasing our facilities in the Patent department, which will enable us to transact a greater amount of business than we have hitherto done. A sacred regard for the interests of our clients always has, and ever will characterize our actions.

Inventors desiring advice in regard to their improvements, can consult us at all times, in person or by letter. They should send a sketch and description of the device, and state clearly its operation, and if they send models they are required by the Patent Office to be substantially constructed, and in size not over a cubic foot.

Oil Cup Letter.

Somebody has written us a letter from Schenectady about an improved oil cup, and although a tolerable fair writer in other respects, he fails entirely with his own signature. We are unable to make it out, and imagine it would trouble any one to do so not familiar with it. This is by no means the only letter of the kind which we have received, and we introduce this as a caution to others not to blindfold those to whom they write by a mere scratch for a signature.

© 1854 SCIENTIFIC AMERICAN, INC

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JULY 11, 1854.

WROUGHT-IRON CAR WHEELS—G. B. Hartson, of New York City: I claim the converging or centripetal form of rolls arranged and operating as set forth, to form a tread or rim on the outer margin of a thin disk of metal, by thickening the said margin, and molding it into the required shape, as described, whether the sides of the disk within the rim be supported by clamp rolls, as set forth, or not, and also whether the disk be heated simultaneously with the compression or not.

GAS HEATING APPARATUS—C. M. Guild, of Brooklyn, N. Y.: I claim the opening and closing of the valve which admits the gas to the heating apparatus by the act of placing and removing the vessel or thing to be heated, as described.

I also claim the small perforation leading from the gas pipe to the burner or heating apparatus, acting independently of the valve, for the purpose of admitting a jet of gas barely sufficient to keep up the flame, without unnecessary consumption of gas, when the heater is not in immediate use, or when one article is removed and before another takes its place, as described.

COAL SIFTER—Elisha French, of Braintree, Mass.: I do not claim the application of rockers so as to extend longitudinally, or in one direction, on the bottom of the coal sifter.

I claim a coal screen in a box fitted with a sliding top and ends, and with rockers placed at right angles to each other on the bottom, as set forth.

SLIDE VALVES OF STEAM ENGINES—M. V. B. Darling, of Providence, R. I.: I claim, first, combining the cam and yoke motion for opening the steam port, and the eccentric or cam and yoke motion for closing the steam port, and causing the two motions to act on the valve, by connecting with the valve the yoke rod of the cam and yoke motion, which gives the movement for opening the port, and furnishing the rod of the eccentric or cam motion, which gives the movement for closing the valve, with an eye, or its equivalent, which lays between two stops or tappet pieces properly arranged on the rod, as described.

Second, giving to the eccentric or cam which gives the movement to close the valve, a greater throw than the cam which opens the valve, in order that, at the proper time, the valve may be made to close the steam port and cut off the steam very quickly, or by a very small part of the revolution of the main shaft, as set forth.

CAMPHOR WASH MIXTURES—C. W. Crozier, of Knoxville, Tenn.: I claim the combination of the several ingredients with camphor. Without the latter substance, the only ingredient that contains the qualities of an essential or volative oil would be the turpentine. By the addition of the camphor we have the peculiar qualities of the oil increased. "Volatile oil occurs in every part of odoriferous plants."—(Ure's Dictionary.) "Berzelius considers camphor a stearoplene."—(U. S. Dispensatory, page 155); stearoplene or stearine having the same import, is the solid constituent of fatty substances, as of tallow and olive oil converted into a crystalline mass by saponification with alkaline matter.—(Ure's Dictionary.) "Fatty matters, when subjected to the action of alkaline lyes, undergo a remarkable change, being converted into three different acids, called stearic, margaric, and olic."—(Ure's Dictionary, page 1148.) "Soap, in the most extended signification of the term, embraces all those compounds which result from the re-action of salifiable bases in oils and fats." These consist of three principles.—two solid, differing in fusibility, called stearine and margarin, and one liquid, called olein, of which there are two varieties. Stearine characterises the fats which are firm and solid, as tallow, &c. From these facts there is no doubt of the saponaceous qualities of the camphor and its power as a detergent, and that it is a very important and valuable addition to the wash mixture.

MOORING AND MANAGING BALLOONS—John W. Brewer, of Cincinnati, Ohio: I claim the invention of this plan of a building, and the arrangement of the necessary machinery, together with a stationary steam engine, gas generators, &c., as set forth.

HARVESTER RAKES—Collins Brown, of Upper Alton, Ill.: I claim imparting the required movements to the rake, by combining with its handle the horizontally vibrating fulcrum lever, and the outer end of the lever, which has a compound vertical and horizontal movement imparted to it by means of the crank pin, pivot, nut, and the curved slotted inner portion of said lever, as set forth.

IMPLEMENT FOR BLASTING ROCKS—C. F. Brown, of Warren, R. I.: I claim blasting rocks by placing the powder or charge within a tube or case, and between two heads attached or connected to a rod, and provided with suitable packing, one of said heads being movable upon the rod, and secured at the desired point by a nut, or its equivalent, the tube or base being inserted in a hole or aperture drilled in the rock, the diameter of which corresponds to that of the tube or case.

FOUNDATIONS FOR PAVEMENTS—J. B. Wickersham, of New York City: I claim the employment as a foundation for pavements, of a layer of woven or interlaced, or other iron work laid upon a bed of any suitable material, as described.

PARALLEL MOTION OF BEAM ENGINES—J. M. Thompson, of Taunton, Mass.: I claim producing a parallel motion by connecting the link to one end of a radius rod, whose other end is attached to a crank or arm, on a rock shaft placed under the center of the beam, and receiving a motion from the same by gearing, as described.

MORTISING SASH STILES—J. B. Smith, of Milwaukie, Wis.: I claim the arrangement of the parts as described so as to constitute a machine capable of mortising both ends of sash stiles of any desired length, and cleaning out the mortises simultaneous with their completion, without the necessity of reversing the ends of the stiles, or tightening or slackening the driving belt, as described.

I also claim the combination and arrangement of the vertical power, chisels, and stationary chisels, with the movable bed and sliding carriage, or their equivalents, independent of the arrangement of the driving belt, when used for mortising sash stiles of only one length, and cleaning out the mortise, as described.

TRAP DOORS—Gustavus Runge, of Philadelphia, Pa.: I claim the application to trap doors of hatchways of counterbalances, hidden from view, working between the flooring and ceiling, as specified, and the attachment of the hinges to the under side of the trap door to avoid all obstructions on the top of the same, and making one smooth surface, with the flooring above, as described.

APPLYING WATER TO COMPOUND BUCKETS OF FLUTTER WHEELS—David Rankin, of Augusta Co., Va.: I claim so arranging of cuneiform buckets upon the radial arms of flutter wheels, as that in passing through an eccentrically-formed water-way three buckets shall receive the volume of water in about the proportions described.

PLATING METALS—R. G. Pine, of Newark, N. J.: I claim plating articles by fitting said articles within a female die, formed of thin sheet metal or any other proper material, which is placed upon an elastic bed, the foil and solder being placed between the female die and article, and forcing a male die, in a heated state, upon the article, for the purpose of fusing the solder, and causing the foil to adhere, and become firmly united to the article, as set forth.

SAWING MACHINE—C. F. Packard, of Greenwich, Ct.: I claim the combination of the vertical saw, or a vertical reciprocating saw, and the horizontal circular saws, when said saws are constructed, arranged, and operated, as described.

HORSE POWERS—Wm. McCord, of Sing Sing, N. Y.: I claim the precise manner described of combining and arranging the parts specified so as to produce an anti-friction horse power.

GAS STOVES—Andrew Mayer, of Philadelphia, Pa.: I do not claim the perforated distributing disk, for that has been previously employed, neither do I claim placing pumice stone or other incombustible material in the flame for retaining the heat, for that is well known.

But I claim the arrangement of the tube, hot-air chambers, and disks, as described, for the purpose set forth.

EYELET MACHINES—H. L. Lipman, of Philadelphia, Pa.: I claim, in combination with a fastner, and a reservoir of eyelets, the conveying apparatus for carrying the eyelet from one to the other, made and operated as described.

I also claim the threading of the eyelets upon a rod or stem, from which they may be delivered one at a time to the carrying apparatus, as described,

LIGHTNING RODS—Amos Lyon, of Worcester, Mass.: I claim the metallic surface lightning rod made in the form described, or in any and every form, where sheet copper, sheet brass, or iron, either of which may be coated with metal or not, and where the surface is all or nearly all exposed to the electrical atmosphere, and is adapted to present points upon its edges throughout its entire length, as described.

DETACHING HARNESS FROM HORSES—Samuel Hunt, of Baltimore, Md.: I claim uniting the two sections of a saddle-tree by a tongue projecting from one section, and fastened in a corresponding groove in the other, by a metal shaft and spiral spring, the whole being entirely concealed from view, and arranged and operating as set forth. Also arranging a set of terrets in two sections, each fitting into a dovetailed groove in the top of the front of one section of the saddle-tree, arranged and operating as set forth.

ORNAMENTING METALLIC BUTTONS—H. W. Hayden, of Waterbury, Conn.: I do not claim combining a series or cluster of bright and deadened punches in one die to produce the whole design or figure by one blow of the die, as this has been done, but in this case the punches must fit perfectly together, or not cover the whole surface, or else the line of the joint between the die will be apparent in the blank or button produced.

I claim the method described, of ornamenting metallic buttons and similar articles, by submitting the same to the separate operations of deadened and bright dies, constructed as set forth.

CONNECTING WATER PIPES—Jonathan Ball, of New York City: I do not claim soldering or screwing a cock into a pipe, as this is often done with lead or other pipes.

But I claim the cock attached to the metal tube, in combination with the boring tool inserted through the cock, by which the pipe and cement is perforated, as specified.

ARCH BOARDS FOR CISTERN ARCHES—Harvey & Seth E. Crosby, of Gustavus, Ohio: We claim the construction of an arch-board composed of a combination of angular curved segments or sections secured together by hooks and dowels, or their equivalents, arranged as described.

PHOTOGRAPHIC PICTURES—J. A. Cutting, of Boston, Mass.: I claim the process of obtaining photographic pictures; displacing the water from the cotton for this purpose with strong alcohol, as set forth.

I do not claim the use of alcohol as a desicating agent, but limit my claim to its special use and purpose stated.

PHOTOGRAPHIC PICTURES ON GLASS—J. A. Cutting, of Boston: I am aware of the previous use of balsam for the cementing of lenses and the securing of microscopic objects and other like purposes, and do not therefore extend my claim to any of these uses.

But I claim the combination of balsam with photographic pictures on glass, and with the additional glass by which they, with the balsam, are hermetically sealed, as described.

VENTILATING RAILROAD CARS—G. F. Foote, of Buffalo, N. Y.: I am aware that it has been attempted to extinguish the sparks from a locomotive by passing the smoke therefrom through a shower of water, and that arrangements have been made for condensing acid gases, smoke, and fumes from lead and copper by the same means in smelting works and other manufactories. I do not therefore claim the passing of a current of air through a shower of water for any other purpose than that set forth.

But I claim the arrangement and construction of the apparatus described, or other mode substantially the same, for ventilating a railroad car with purified or heated air, or both, as set forth.

I also claim the diffuser and its equivalent, for the purposes specified.

CEMENT—H. P. Gengunbre, of Alleghany City, Pa.: I claim the process of preparing fusible marble by adding asphaltum or mineral pitch, aluminous clay, calcareous loam, and silex, in or about the following proportions, viz., aluminous clay, 60 to 75 per cent. calcareous loam from 10 to 20 per cent., pitch from 30 to 40, and silex in quantity sufficient to give the desired hardness and the quantity of pitch to be increased or reduced according to the temperature or purposes for which the manufactured article is to be used.

INKSTANDS—R. T. Fry, of Spring Garden, Pa.: I claim a two part inkstand with the elastic disk secured to the upper part or half, said two parts being held together air-tight by a flanged cap or ring, and so that access may be had to the ink reservoir without disturbing or removing from its part the elastic diaphragm, as described.

CHAIR-CANE—Rufus Porter, of Washington, D. C.: I claim constructing a chair or table by hinging four arms and four legs to a hub, or hubs attached to or mounted upon a central vertical shaft, and supporting said arms and legs by radial braces, which connect said arms and legs to sliding sockets, in such a manner that the said arms and legs may be closed up to a compact form, as described.

DIAPER PINS—J. Rabbeth, of East Hartford, Conn.: I do not claim a diaper lock having a loop which is concave formed on one of its ends for the pin to be retained under, and two side slots between said loop and the pin holder for the pin to pass through, as such a pin was patented by Woodward in May, 1849.

But I claim the combination of the slotted permanently fixed tube with the revolving slotted tube, arranged and operating as specified.

COW CATCHERS—T. B. Smith, of Triune, Tenn.: I claim the beam or scraper in combination with the nut piece and screws, arranged and operating as described, to produce the alternate lateral movement of the beam over the surface of the cow catcher, for the purpose set forth.

CONDENSERS FOR STEAM ENGINES—F. G. Smith, of Columbia, Tenn.: In the operation of the tubular condenser, especially if the attempt be made to work without the injection of cold water there is much difficulty found in effecting the instantaneous transmission of the caloric of the steam through the metal forming the tube of the condenser, on account of the thickness of the metal necessarily used on the plans heretofore adopted to secure the requisite strength for resisting the force of the atmospheric pressure.

I claim the mode of constructing such tubes by which the two offices of assisting the atmospheric pressure and transmitting the caloric of the steam to the surrounding cold water through the intervening metal of the tubes are separated, the pressure resisting strength being gained from an interior tube of stiff metal having innumerable holes punched through it, and this being surrounded by a water-tight covering of thin sheet copper or other suitable material, against the internal face of which the steam impinges by passing through the perforations in the strong inner tube, and is thus brought into the nearest possible contact with the surrounding cold water.

PLANING STONES AND METALS—J. M. Smith, of New York City: I claim the revolving disk containing a series of cutters sufficient for completing the planing of a portion of the surface of an object, in combination with the rest or slide, as set forth.

SHIP VENTILATOR—Willet Thompson, of New Haven, Conn.: I do not claim anything new in it as a method of ventilating ships, as such method is old, both as applied to the decks and sides of ships. I am also aware that a movable or rising and lowering cap locked both in its open and closed positions, by turning it so as to bring pins or projections in its stem under and over inclined planes on the flange or stationary box; part has before been employed in deck ventilators, and that such is a common mode of fastening down or making tight when closed, side lights for ships' lamps in their holders, also lamp tops and other lids or covers, and I therefore do not claim as new the cap or lid tightened when closed by projections from it biting against inclined planes beneath,

But I claim the construction of deck ventilators for ships, the combination and arrangement specified, of the elevating spring, with the cap, and its tightening inclines for locking the cap when closed, constructed and operating as described, whereby the cap of the ventilator is not only made self-rising, and held open by the spring beneath to insure ventilation whilst loading and discharging cargo, without loss of time or labor in opening and closing the ventilator, as goods are passed on or over it and the deck, but whereby greater convenience and facility is afforded for rolling or passing casks of goods over the ventilator by reason of the specified yield or easy depression which the cap is made capable of, when the cask, in touching the cap, throws part of its weight thereon, and whereby the ventilator is rendered less liable to strainage, injury, or breakage of its stem or other part when open, and is more securely locked when closed, and the cap protected from accidental turning or opening, by reason of the upward pressure of the spring, causing the locking projection of the cap to bite firmly against the stationary inclines, as set forth.

HACKLING CORN HUSKS—Wm. H. Fullerton, of Louisville, Ky.: I do not claim the plan of forming the drum or the adjusting concave surface, nor the manner of forming the wooden or other case, nor the kind of gearing to be used to suit the purpose of working the machine by either hand or other power.

I claim the particular form or the teeth employed of whatever material they are made, for the purpose of being arranged in any way on drums or otherwise, and the particular application of them for the purpose of hackling corn husks, as set forth.

HOT AIR FURNACE—Peter Sweeny, of Buffalo, N. Y.: I claim making such air-supplying apparatus movable and adjustable within the fire pot or chamber, as specified, for the purpose of adapting it to the varying hight and condition of the charge of fuel to effect the economical combustion thereof.

And I also claim making such air-supplying apparatus in two parts, as specified.

I also claim dividing the hot-air chamber into two or more compartments by partitions provided with apertures governed by dampers or valves, as specified, for the purpose of regulating the supply of air to separate parts of a building as circumstances may require.

SELF-ACTING MULES FOR SPINNING—George Wright, of New England Village, Mass.: I claim, first, driving the carriage in and out by the continuous motion of the cone pulleys in combination with some method of automatically shifting the belt for the purpose of adapting the speed of the carriage to the requirements of the different parts of its traverse, by which means I am enabled to dispense with the complicated mechanism heretofore adopted for the attainment of the same end.

Second, I claim the pulleys upon the shaft, arranged and operating as described, by which a continuous motion in one direction is given to the said shaft, for the purpose of driving the carriage, and an intermittent motion to the twist pulley, when the winding on is accomplished by mechanism independent of the motion of the twist pulley.

Third, I claim the friction pulley, or its equivalent, constructed and operating as described, in combination with any efficient method of regulating the speed of the spindles by the tension of the yarns, as set forth, by which means I dispense with the complicated machinery heretofore made use of to regulate the winding on, and am enabled to run any machine at a speed far exceeding that which can be attained where the motions of heavy cogged gearing are to be constantly reversed.

AUGERS, GIMLETS, &c.—Washington Spangler, of Harper's Ferry, Va.: I claim constructing augers and gimlets out of any desired shape of metal, by filing, turning in any equivalent manner, or using the tapering pieces of metal concave on one or both sides, and forming two bevel cutting edges, or graduated or regularly diminished conical twists, as described.

CORKING BOTTLES—T. W. Gillett, of New Haven, Ct.: I claim combining the safety cylinder or screen with the cross bar of the charging socket, or other proper part of the bottling machine, so that the said screen will surround the bottle at the same time that the charging socket is brought over the neck of the bottle, and keep it it there until the filling and corking has been completed, as set forth.

ADJUSTABLE BEARINGS FOR CIRCULAR SAWS—Ann G. V. McKinstry, of Washington, D. C. (administratrix and executrix of of Wm. McKinstry, late of the same place): I claim as the invention of Wm. McKinstry, deceased, the arrangement of the bed plate carrying the boxes, in combination with the set screws, holding bolts, shaft, and circular saw, as set forth.

FIRE ARMS—Eden Baldwin, 2nd (administrator of Eden Baldwin, dec.) of Worcester, Mass.: I claim as the invention of the said Eden Baldwin, first, a movable loading or slide chamber, and a tubular loading magazine, in combination with the gun barrel, is not claimed; but the described manner in which such movable slide chamber and loading magazine are arranged combined and made to operate with respect to one another, and the barrel, whereby a series of charges or cartridges are successively carried from the magazine to the barrel by one sliding chamber only.

Second, and in combination with the depressing chamber or slide, and the tubular or loading magazine, I claim mechanism, as described, for moving the cartridges into the depressing chamber, when depressed into line with the loading magazine, as specified.

Third, and in combination with the slide and the lever, and mechanism by which the cartridges are drawn towards the chamber of the slide, I claim the circular arc projections, and the correspondingly curved recess, the same being for holding the block in place or at rest, while the toothed sector is out of engagement with the rack, and the lever is in movement to actuate the rod as described.

SEWING MACHINES—G. A. Leighton (assignor to Nehemiah Hunt), of Boston, Mass.: I claim combining with the longitudinal movements of the two needles of the sewing machine, lateral movements of one needle so that the forward and backward movements of each needle shall be respectively on opposite sides of the other (instead of on the same side of it) whereby the crossings of the loops are made to be drawn into or directly over the holes made through the cloth or material sewed, and so as to produce a very flat seam or sewing, as specified.

WIRE HEDDLE EYES—Thomas Clegg, (assignor to himself and Nathl. Stevens), of Andover, Mass.: I claim the combination of pressure jaws or mechanism with machinery for doubling and producing the twist in the wire, as set forth, the said pressure jaws or compressing mechanism being for the purpose of flattening the twists of the wire, as specified.

And in combination with the pressure jaws or mechanism, and the mechanism for producing doubling and twisting the wire blank, I claim the movable carriage and its jaws, or mechanical equivalents therefor, made to operate as set forth,

I also claim the combination of the stationary rest and movable die, with the slider or bender, the shaft, and the rotary notch gear, the whole being made to operate together as specified.

CARVING MARBLE, STONE, &c—Wm. I. Casselman, (assignor to E. A. Swan), of Vernon, N. Y.: I do not claim moving a cutter by means of solid pattern wheels, as this has been done, but I am not aware of any apparatus heretofore used, in which adjustable or movable patterns have been attached to a fixed wheel, and so combined with a revolving or reciprocating bed, that cutters are thereby brought to operate on the marble or other material, to carve the same, as specified.

I claim, first, the means described for carving or cutting marble or other material, consisting of the adjustable or movable blocks or patterns on a revolving wheel or wheels, for determining the position of the cutting tool or tools, either horizontally or vertically, in combination with a revolving or reciprocating bed, as specified.

Second, I claim communicating motion from a pattern wheel or wheels, constructed with movable or adjustable patterns, both on the circumference and on the sides to the sliding tool or tools, by means of levers, so set and operating as to place said tools in the required position as the parts move, as specified.

Third, I claim constructing a cutting tool or tools for carving marble or similar substances, with blades or tools attached to the bottom and side of the stock, which stock is so fitted as to receive a rotary motion to operate as specified.

PEGGING BOOTS AND SHOES—A. C. Gallahue, of New York City: I do not claim a rocking bed plate, irrespective of its attachment to the carriage, as shown, for rocking bed plates have been previously used.

But I claim the employment or use of the rocking bed plate, when such bed plate is attached to a movable carriage, as described, for the purpose of causing the edge of the sole of the boot or shoe, to bear against the gauge block, as the carriage is moved without the intervention of a pattern or cam.

MAKING HEADS OF SHOVEL HANDLES—R. D. Bartlett, of Bangor, Me.: I claim constructing the dished wheel and its cutters, and applying them together, as described, in combination with so constructing the bearing rest with a shelf and bearer plate, or equivalent contrivance, applying it to the wheel so as to cause it to extend within the wheel, and enable a person to introduce the shovel head into it and between it, and the inner surface of the wheel, and support said shovel head, and turn it against the cutters, so as to cut it curved in two directions, as specified,

LANTERNS—Andrew Lanergan, of Boston, Mass.: I claim combining with the lantern the mouth tube, so as to enable a person to put out the flame of the lamp, as described.

IRON HOUSES—Charles Mettam, of New York City: I claim the combination of the chairs with the breast summers and columns, as set forth.

GRAPNEL FOR RAISING VESSELS—J. T. Martin, of New York City: I do not claim the use of hooks, as box hooks, can hooks, &c., as ordinarily used: but I claim the combination of the plates, levers, and iron bars with the timber, constructed as described, to form a marine grapnel, to be used in the raising of sunken vessels, as described, as being a more expeditious method of getting fast of sunken vessels than by the old-fashioned way of sweeping by chains, which is not always successful, and in all cases is more expensive than it would be if the Marine Grapnel were used.

CONSTRUCTING METALLIC ROOFING—Henry Outcalt, of Wilmington, Ohio: I do not claim merely scrolling the edges of metallic plates, and thus connecting them together for the purpose of preventing water from driving through the roof, as that is an old device.

But I claim scrolling the edges of metallic plates so as to form a tube or cylinder, and connecting their edges by means of other scrolls, which are formed also into tubes, on the edges of a narrow strip of the same kind of plate, and being somewhat larger than the former tube or scroll, so that they will slide over and fit snugly to it, for subserving three different purposes, viz., first, for protecting the roof against injury from contraction and expansion. Second, for the purpose of preventing the water from driving through the roofing at the scrolls. Third, for the purpose of supporting the roof and all superfluous weight that may accumulate, such as snow, &c., without any superstructure other than those on which its ends rest, the whole arranged and constructed as described.

FREEING CANAL BOATS FROM WATER—William Loughridge, of Weverton, Md.: I do not of itself claim the discharge of water from the vessel by the exhausted tube.

But I claim the described arrangement of float, valve, and bent tube, in the bottom of the boat, by which the discharge of water is rendered automatic, and the boat freed from leakage, as set forth.

OPERATING CUT-OFF VALVES OF STEAM ENGINES—Wm. Lowe, of Hartford, Conn.: I claim the double rock shaft, one passing through the other, the outer shaft to work the catches and exhaust valves, and the inner shaft actuated by the catches to open and close the valves to effect the cutting off the steam, as set forth, in combination with the other parts of the mechanical movements, as described.

ELEVATED OVENS—J. C. Kennedy, of Albany, N. Y.: I claim the combination of two or more ovens in the elevated oven chamber or shell, with flues for hot air between each end of the chamber and one of the ovens, also with a flue between each oven, all the flues being provided with regulating dampers, for the proper management of said oven and flues, as set forth.

IMPACT WATER WHEEL.—Abel Greenleaf, of Kingston, Pa.: I claim the combination of the horizontal buckets with the vertical buckets in the manner described.

APPARATUS FOR SEALING CANS.—Joel Green, of Cincinnati, Ohio: I claim, first, the application of a steam jacket, coil or equivalent device, to an exhausted receiver, in connection with a soldering apparatus for the purpose of sealing or soldering preserving canisters, &c., under the combined agencies of heat and vacuum for the purposes explained.

Second, The combined ball and sliding, and air tight joint of the rod as described, permitting the heating, insertion, and the vibratory longitudinal, and revolving motion of the soldering bit while excluding the external atmosphere, for the purpose of soldering in vacuo, as explained, and enabling the direct application of the heated bit, without the intervention of any other substance.

LIFTING JACKS—Robert W. Genung, of Blooming Grove, N. Y.: I claim making the lever capable of being adjusted, so as to be thrown in and out of contact with the rack bar with facility and ease, and retaining it securely in its place after being adjusted, by providing the bearings with a curved slot and two semi-circular fulcrum rests as described.

OIL OR BLUBBER PRESSES.—William P. Chadwick, of Edgartown, Mass.: I do not claim the combination of a screw platen and box, nor the arrangement of the screw within the body or interior of the box, in connection with so applying it to one head of the box and to the platen, that by its revolution it shall be drawn towards the said end of the box.

But I claim the arrangement of the screw within the body of the box in connection with fixing it firmly and immovably to the platen, and so applying to it and one end or the bottom of the box, as described, a rotary screw nut and a set of gears, and a crank shaft, that by revolution of the screw nut, the platen will be forced towards the top (or other end of the box) the said arrangement and application of the power that operates the platen enabling me to make a much more compact, efficient, and desirable blubber press for ship use than that heretofore patented by me.

VALVULAR ARRANGEMENT FOR DIAPHRAGM PUMPS—Stillman A. Clemens, of Springfield, Mass.: I claim the mode set forth of constructing and operating the valve in combination with flexible diaphragms, to wit, the valvular openings being in the diaphragm itself or in a part of the diaphragm and the valve being attached to and worked by the piston in such manner that the diaphragm shall move to and from the fixed valve and close and open the holes in the diaphragm valve in the manner set forth.

MACHINES FOR STRETCHING SHOES.—Alfred Burwell, of Rochester, N. Y.: I do not claim the operation of expanding lasts with a single screw, as that has been long known and used for expanding lasts at the instep, also the projecting metal attached to the plates.

I claim the construction and use of lasts to be operated by two independent screws in such a manner as to be able to stretch the shoe or boot at the instep or toe at pleasure.

I also claim the expanding plates with their projecting pieces of metal applied, operated by the wedge or cone pointed screw.

HAT SHAPERS—Adolph and Felix Brown, of New York City: We do not claim the segments or coupling, the same being now generally used; but we claim the application of the movable pieces with their set screws working in a groove made in the segments or the equivalents thereof, and bearing against any desirable point of a flexible plate fitted round the outside, giving thereby the same any desirable shape as described.

© 1854 SCIENTIFIC AMERICAN, INC

LIFTING JACKS—F. B. Smith, of Craigsville, N. Y.: I do not claim the oblong slot separately for the purpose of allowing the lever to be adjusted, so as to let the bar fall.

But I claim the curved oblong slots in combination with the double acting pawl and tooth on the lever, so that the lever may be adjusted, as described, and after being adjusted, prevented from again falling and coming in contact with the rack bar, before it has entirely descended as set forth.

TAKING DAGUERREOTYPES FOR STEREOSCOPES.—Albert S. Southworth, and Josiah J. Hawes, of Boston, Mass.: We do not claim taking pictures for the stereoscope with the camera placed in two different positions or with two lenses attached to the same instrument when the two points are in the same horizontal line, as this has been done before.

But we claim the described method of taking stereoscopic pictures in which the two positions of the camera are upon a line making an angle of 45 deg. with the horizon.

BEDSTEAD FASTENINGS—R. H. St. John, of Columbus, Ohio: Disclaiming the invention of the clevis, staple, and key or wedge as original devices, I claim the clevis clamp together with the double mortised post in combination with the key or wedge, through all of which is produced a compensating bedstead fastening as described and shown.

CHAIN HOOK—Willis Straw, of Dalton, N. H.: I claim the "Iron Guard" and the manner of attaching it to the hook.

RINGING BELLS BY STEAM—G. B. Snow, of Buffalo. N. Y.: I do not claim of itself as new, ringing bells by the application of steam power, as such as this has before been done, nor do I claim the several devices herein named individually as new.

But I claim the manner described of ringing the bell by the application of steam power and the gravity and momentum of the bell combined, by means of the direct acting engine attached by chain or other equivalent mechanical device, to the bell, and arranged, combined, and operating with the bell as specified, and so that the bell is swung in one direction by the engine and then let loose or free to swing back in the opposite direction by its own gravity and momentum to produce the ring or sound, and the steam alternately admitted to and exhausted from the engine by the action of the engine and movement of the bell combined substantially as specified, and whereby the same freedom in the swing of the bell to produce a long and clear sound as is produced by the ordinary manual process, but with greater regularity and consequent increased clearness of note, is automatically obtained as set forth.

SCREW WRENCHES—Jabez C. Terry, of Springfield, Mass.: I claim attaching the shank of the inner and stationary jaw to the handle by means of straps or their equivalents, attached to the lower end of said shank, said straps passing through the screw nut and into the handle and having grooves or recesses in them which when the straps or handle are turned, receive projections on the top of the handle, as shown and described.

MILLS FOR GRINDING—Thomas B. Woodward, of Kingston, Pa.: I claim the combination and arrangement of one or more cylindrical bruising or grinding nuts and chambers or cylinders, with the stones of the mill in such manner that the relative distance of the stones to each other may be varied without increasing or diminishing the distance of the acting surfaces of the nuts and cylinders as specified.

BRAKES FOR LIGHT VEHICLES—Moses D. Wells, of Morgantown, Va.: I do not claim the employment of spiral or other springs to draw the rubbers to the wheels, nor do I claim any of the devices embraced in the patent of Elijah Chapman, Sept. 26, 1846, or the rejected applications of G. Newcomer and J. M. Ewing.

But I claim the combination of the two systems of springs with the rods and levers for so operating the brake bar, that the movement of the levers within certain limits shall have no action on said bar, as and for the purposes set forth.

IRON SLATS FOR WINDOW BLINDS—William E. Ward, of Port Chester, N. Y.: I claim the described manufacture of Venetian blind slats made of sheet iron of two thicknesses in one piece, with both edges bent entirely over, the two halves of the width bent or curved in opposite directions, and with a semi-circular bead on each face enclosing a wire the ends of which form journals, the whole as specified constituting the new manufacture.

FLOURING AND BOLTING—John Stouffer, Peter Brough, and John W. Barr, of Chambersburgh, Pa.: We claim the arrangement of the bolts, pipes, screw conveyor, and spout by means of which the specky flour first passing through the upper bolt is re-bolted by being mixed with the stuffs (containing the bran) as received from the main burrs, by which the quantity of superfine flour is increased, while the quality or brand is maintained, substantially as set forth.

MAKING PASTE BOARD—Orin W. Fiske, of Dedham, Mass.: I claim the combination and arrangement of the cylindric paste brushes, with three rolls or beams of paper, and compressing and draft rolls as described, whereby the two cylindric brushes are made to apply at one operation, the paste to the underside of the upper strip of paper, the two sides of the middle strip, and the upper side of the lower strip, all as set forth.

PEN AND PENCIL CASE—Jacob J. Hatcher, of Philadelphia, Pa.: I do not claim the operation of a double extension case, nor do I claim the combination of a pen and pencil in one case, but claim, first, the permanent attachment of the pencil to the case operating by the tube sliding over the pencil as set forth.

I also claim the hollow reserve for leads with the penholer working over and around the ever point in the manner set forth.

IRON PICKET FENCE— Mathew Walker, Senr., of Philadelphia, Pa.: I claim the mode set forth of making wrought iron fences, the same oonsisting in a compound rail composed of two bars of wrought iron corrugated by dies, so that the bars shall embrace the posts or bannisters at the proper intervals, and between the same have their inner surfaces in contact so as to be riveted up close and make a firm and neat fence.

DESIGNS.

COOKING STOVE "GREAT REPUBLIC"—John C. Smith, of Philadelphia, Pa., (assignor to C. W. Warwick and F. Liebrandt.)

RADIATOR STOVE "LADY WASHINGTON"—Samuel H. Sailor and John C. Smith, of Philadelphia, Pa., (assignor to C. W. Warwick, and F. Liebrandt.)

COOKING STOVE—Harrison Eaton, of Nashua, N. H., assignor to James Hartshorn and Windsor Ames.)

WELL CURBS—Wm. Douglass and Benjamin Douglass, of Middletown, Conn.

TO CORRESPONDENTS.

M. S. S., of Ind.—The improvement which you suggest in the shape of nozzles for funnels is as old to us as ten years. It is a good idea but not a new one. The use of gutta percha for jar and pot covers could not be patented. Any one would have a right to use this substance or any other for that purpose. Your idea of propelling a clock by minature water power, is scarcely worth considering in this day of cheap clocks. Merely adapting a water wheel to drive the works, could not be considered as embracing any patentable feature.

I. G. McK., of Ga.—Overman's Metallurgy, published by Appleton & Co., this city is the only work of the kind published here that we can recommend.

O. P. R., of Mass.—The lac varnish—if made with alcohol—not an alkali, as some of it is made with—dries as fast as any known to us. You can make it thin and put it on with a proper brush.

W. M. M., of Oregon.—We do not see what advantage could be obtained by your wheel, in fact, we do not see how it can answer at all, and if you try a small one you will become convinced of this fact.

H. T. Davis, of Wilmington, Ohio.—Wishes to correspond with some person who can furnish implements for boring artesian wells.

F. P. C., of S. C.—All the difference between your guage and others, is the greater length of your connecting tubes. It is not a patentable point.

J. D. B., of O.—You are right in regard to the rules of the office, and we cannot account for the delay you complain of in any other way than that the cases recently granted were suspended cases which had laid over since the class was last up, and have been subsequently amended, so as to pass. We will keep an eye on your case.

S. O. C., of N. Y.—We should like to retain your drawing until we hear from you concerning the engravings. If you decide to have engravings executed they might be of service to us.

W. S. W., of Tenn.—I, M. Thorburn & Co., No. 15 John St., N. Y., are extensive dealers in seeds. Longett and Griffing, No. 25 Cliff St., keep a large assortment of agricultural implements. A Patent Office report is issued yearly containing a complete list of all the patents granted during the year. It is published by order of Congress, and can be procured only of members, who distribute a few copies among their constituents.

I. B. S., of Pa.—Your suggestion in regard to the milling interest is very good, and an enterprise of the kind was undertaken two or three years since by one of the most competent men acquainted with the trade, but it failed for want of support, after about a year's trial, and what encouragement now remains for another to succeed him—none whatever—it is one thing to publish a paper—it is another to make it profitable.

E. T. Seabury, Waterbury, Vt.—Wishes to know the best wheel to drive two run of stone and a smut mill with 30 ft. head. He does not wish to draw over thirty inches water.

W. B. G., of Iowa.—We have very carefully examined the sketch of your apparatus for converting reciprocating into rotary motion, and we think you are laboring under mistaken ideas in regard to it, It possesses no novel feature upon which a patent can be obtained, it also lacks utility—you had better drop it.

F. P. H., of Del.—There is nothing new in the shear cutting principle for reaping and mowing machines.—We have sketches in our possession which show the same thing.

Money received on account of Patent Office business for the week ending Saturday, July 15:—

J. Y., of Pa., $30; J. D., of N. Y., $30; G. B. F., of Vt., $30; L. & S., of N. Y., $330; P. & B., of N. J., $25; C. P., of Pa., $20; H. W. P., of N. Y., $10: W. C., of Mass., $55; T. P. K., of Pa., $55; L. A. H., of Ky., $20; E. & R., of N. Y., $20; E. A., of Ct., $30; H. L. R., of Mich., $30: W. & T., of Pa., $25; E. A. S., of Ill., $34: J. W., of N. J., $50; P. T., of Pa., $55; J. S., of Ga., $25; L. W., of Iowa, $30; Z. B., of N. C., $25; I. W. McG., of Pa., $35; N. G., of O., $25; H. H., of N. Y., $25; G. B. R., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, July 15:—

N. G., of O.; H. H., of N. Y.; J. W, of N. J.; G. B. R., of N. Y.

ADVERTISEMENTS.

Terms of Advertising.

4 lines, for each insertion,	75 cts
8 "	$1 50
12 "	$2 25
16 "	$3 00

Advertisements exceeding 16 lines cannot be admitted: neither can engravings be inserted in the advertising columns at any price.

☞ All advertisements must be paid for before inserting.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express, or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

EUROPEAN PATENTS.—MESSRS. MUNN & CO. pay especial attention to the procuring of Patents in foreign countries, and are prepared to secure patents in all nations where Patent Laws exist. We have our own special agents in the chief European cities; this enables us to communicate directly with Patent Departments, and to save much time and expense to applicants.

HARRISON'S SUPERIOR GRAIN MILLS—Latest Patent of June 6, 1854.—The New Haven Mfg Co. having the right for said Mills, will keep a supply constantly on hand. A liberal commission paid to agents for sale of the same. For further information address New Haven Manufg. Co., New Haven Ct. 45tf

MARYLAND INSTITUTE.—Baltimore Seventh Annual Exhibition will be opened on the 18th September next, and close on the 16th of October. Circulars with rules and regulations, and any information required, will be promptly furnished by application to John S. Selby, Actuary of the Institute.
45 6* THOS. SWANN, Ch. Ex. Com,

THE CELEBRATED 30 QUEBEC RECEIPTS—For coloring cotton and wool.—Peace Dale, R. I., Feb. 7th, 1853:—Having used the above work, I recommend every person who has coloring to do, to procure a copy, as I think it the best of any thing I have ever seen. Having been brought up at the coloring business, and followed it for over twenty years, I deem myself qualified to judge of its merits. LORENZO HALL.

A few copies for sale. Enclose $1 on any solvent bank and a copy will be forwarded you by return mail, free of postage. E. D. CAMPBELL,
Proprietor for the United States.
Campbell's Mills, Ct. 1*

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—For Stationary, Locomotive, and Marine Engines. These Boilers having been thoroughly tested by scientific experiment and practical use, are being rapidly introduced into every part of the United States. Their claims to superiority are fully supported by the united testimony of highly respectable parties, who have given them the most successful trials. The following are among the chief advantages of this Boiler: 1st. Great increase of heating surface, with diminution of bulk. 2nd. Economy of fuel—a saving of more than 50 per cent, being effected over other boilers. 3rd. Economy of space, compactness, and strength of form. 4th. Increased safety from explosion. 5th. Freedom from incrustation. Circulars obtained on application at the Company's Office. Boilers of any required power furnished on short notice. Rights negotiated for all parts of the United States, England, France, and Belgium. All communications promptly attended to.
W. F. PHELPS,
45 3 Sec'y Irving S. Boiler Co., 347 Broadway, N. Y.

MACHINISTS TOOLS—Shriver & Brothers, manufacturers, Cumberland, Md., have for sale various sizes of Planing Machines, Engine Lathes, Drills, and Hand Lathes. These tools are built in the best manner and have received the highest testimonials at the Ohio Mechanics Institute, and from railroad and other shops where they are in use. Full descriptions and price list furnished upon application to SHRIVER & BROS., Cumberland, Md. 45 3*

OIL FOR MACHINERY—Cumberland Brothers' Patent Metallic Oil and Grease may be obtained from the undersigned, who are the only manufacturers. An experience of five years, and increased facilities, will hereafter ensure the prompt filling of all orders. YOCKNEY & CO.,
Elizabethport, N. J., office 67 Exchange Place, N. Y.
N. B.—We have no agent in New York, nor any other place of business than the above. 45 12*

REYNOLD'S DIRECT ACTION and Re-Action Water Wheel—This is one of the most simple, cheap, and efficient Iron Water Wheels now in use.—For description, cuts, &c., apply to SAML. B. LEACH, Agent, 60 Beaver st. N. Y. 45 13*

SUBMARINE ARMO —For sale,—A complete suit, with the Pump and rescuing apparatus, in excellent order and ready for immediate use. Address GEO. C. HOWARD, Tool Builder and General Machinist, 18th street, below Market, Philadelphia. 44 4*

PATNER WANTED.—In the foundry business, an old establishment, and in successful operation. Situated on a line of railroad, about 40 miles from Buffalo. This is a desirable offer. Address, if by letter, P. P., Box 27, Dunnville, C. W. 44 3*

25 HORSE POWER ENGINE AND BOILER complete. Ready for shipment—has upright tubular boiler—cylinder horizontal on heavy bed frame—flue heated governor, &c., for sale by,
JAMES W. HOOKER,
43 3 Buffalo Machinery Depot, 36 Lloyd St., Buffalo.

BUFFALO MACHINERY DEPOT. JAMES W. HOOKER, 36 Lloyd St., Buffalo, offers for sale all kinds of machinery, as follows: Engine Lathes, Planing Machines, Universal Chucks, Caststeel Borers, Drills, Leather and Rubber Belting, Packing and Hose Oils, Millstones, Portable and Stationary Engines, Boilers, and Machinery generally. 43 tf

PATENT ROCK DRILL.—The simplest, cheapest and best ever offered to the public. For information apply to A. B. ELY, Esq., Boston, Mass., agent of North American Rock Drilling Company. 43 3m

FOR SALE, LOW.—The Patent of a Self-Unloading and Adjusting Hay Elevator. Patented May 30th 1854. Address, Horsham, Pa.
43 7* T. T. JARRETT, Patentee.

READING'S PATENT CORN SHELLER and Cleaner—capacity 200 bushels per hour. 9 first premiums awarded in the Fall of 1853. Patent Rights and Machines now for sale at the corner of 2nd Street and Pennsylvania Avenue, Washington, D. C. I challenge the world to produce its equal. Address personally or by mail. WILLIAM READING. 43 13*

THE EUROPEAN MINING JOURNAL, Railway and Commercial Gazette. A Weekly Newspaper, forming a Complete History of the Commercial and Scientific Progress of Mines and Railways, and a carefully collated Synopsis, with numerous Illustrations of all New Inventions and Improvements in Mechanics and Civil Engineering. Office, 26 Fleet Street. London. Price $6 1-2 per annum. 43

T. M. CHAPMAN'S PATENT SAW FILING Machine. The best known and without a rival. The subscriber offers for sale Territorial Rights, and also builds and sends machines wherever they may be wanted. T. M. CHAPMAN, Patentee, Old Town, Me. 40 10*

LEONARD & WILSON—No. 60 Beaver st, and 109 Pearl st, have constantly on hand and for sale a full assortment of Machinists' and Carpenters's Tools, embracing every variety of Engine and Hand Lathes, Iron Planing Machines, Mortising and Tenoning Machines, Wood Planers, &c. Also, Leather Belting of all sizes made of the best oak tanned butts, stretched on powerful machines, riveted and cemented. 42 13*

IMPORTANT—To Machinists and Mathematical Instrument Makers. An application for a patent is on file for an attachment to Gear Cutting and other Dividing Engines, by means of which the circle may be accurately divided into any desirable number of equal parts. Persons wishing to use such an attachment, or to become otherwise interested in the right, will receive further information by addressing, post-paid, P. O., box 116, Worcester, Mass. WM. H. BROWN. 42 4*

MATHEMATICAL,—Optical, and Philosophical Instruments. Our priced and illustrated Catalogue furnished on application, and sent by mail free of charge, McALLISTER & BROTHER,
42 4 Opticians, 48 Chesnut st, Philadelphia.

PATENT RIGHT FOR SALE.—We are ready to dispose of the Patent Right, (or any part of it) of the best Stone Drilling Machine now in use, or we are prepared to furnish working machines at very reasonable prices, these machines will drill from 1 to 7 inches in diameter, and 100 feet deep, and can be worked by Hand, Horse, or Steam Power, one machine performing the work of twenty-five men. For further particulars and circulars with cuts address JAS. T. WHITTEMORE, Agent American Manufacturing Co., 39 State street, Boston, 40 tf

THE CRESCENT FOUNDRY & MACHINE CO. Bridgeport, Conn., make to order Stationary Steam Engines from 8 to 150 horse power, large double acting Force Pumps for water works, Iron Planers, Engine Lathes built in the most substantial manner and UNCOMMONLY HEAVY. Machinery in general and all kinds of Steam Boilers. Having a large and extensive stock of mill gearing and other patterns, the accumulation of 18 years, they are prepared to furnish castings at short notice. Any work ordered from this Company will be guaranteed equal to any made in this country. They would call attention to a large lathe which they build, designed for Railroad Machine shops for turning of drivers. They also make a very large and heavy lathe with screw feed, designed for Machine Shops in general. They are now making a vertical Engine of new design from 8 to 10 horse power, which will require but the small space of 4 feet square, (the bed being 2 4 by 34 inches) and with a vertical boiler will require only 4 feet by 8 feet.
18 12 1am 1y*

STAVE AND BARREL MACHINERY—HUTCHINSON'S PATENT.—This machinery, which received the highest award at the Crystal Palace, may be seen there in operation during the ensuing season. Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when finished in another way. Applicable alike to thick and thin staves. Apply to C. B. HUTCHINSON & CO., Auburn, N. Y., or at the Crystal Palace. 34tf

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads. Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Lathes, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m.*

PIG IRON—Scotch and American; also English Boiler Plate and Sheet Iron, for sale at the lowest market prices, by G. O. ROBERTSON, 135 Water st. cor. Pine, N. Y. 40tf

JOHN PARSHLEY, No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing off 25 Engine Lathes, 6 feet shears, 4 feet between centers, 15 inches swing, and weighs about 1100 lbs. These Lathes have back and screw gear, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathe; they are of the best workmanship. Price of Lathe with count shaft and pulleys, $155 cash. Cuts, with full description of the lathe, can be had by addressing as above, post-paid. Also four 30 horse power vertical Steam Engines with two cylinders. Price of engine with pump and heater, $800 cash. For particulars address as above. 35tf

$100 REWARD—To the Manufacturers of Bank Note Paper. The Executive Committee of the Association of Banks for the Suppression of Counterfeiting, hereby offer a reward of One Hundred Dollars for the best specimen, in the opinion of the Committee, of Bank Note Paper, of not less than five hundred sheets, which may be submitted to them on or before the 1st day of January next. All paper submitted, except that selected by the Committee, to be returned to the persons submitting the same.
J. M. GORDON, Secretary.
Boston, Mass., March 31 1854. 31 15*

FULTON FOUNDRY AND MACHINE WORKS S. W. corner of Green and Morgan streets, Jersey City, N. J. The subscribers are prepared to contract for Sugar Mills and Mining Machinery of every description. Horizontal Steam Engines of various sizes constantly on hand. All orders executed with promptness.
34 13* FIELDS, BROTHER & CO.

PALMER'S PATENT LEG—"The best appliance ever invented." Pamphlets containing the testimonials of the first American and European surgeons, and other information concerning this invention sent gratis to all who apply to PALMER & CO., Springfield, Mass.: or 376 Chesnut st, Philadelphia. 42 13*

NORCROSS' ROTARY PLANING MACHINE. The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.

The printed Report of the case with the opinion of the Court can be had of Mr. Norcross. 36 6m*

MACHINERY FOR SALE—The following machines are for sale at the "Scientific American" Office:—Alcott's Concentric Lathe, price $25.
Portable Mortising Machine, $20
Bushnell's Iron Drill, $25
All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N. Y.

MACHINISTS TOOLS—Power Planers 4 to 16 feet long, weight 1,000 to 10,000 lbs. Engine Lathes, 6 to 19 feet long, weight 1,700 to 8,400 lbs., swing 21 to 38 inches. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Slide Rests, Chucks, &c., of best materials and workmanship constantly on hand, and being built, also the best Grain Mills in the country, "Harrison's Patent." For cuts giving full description and prices address NEW HAVEN MANUFACTURING CO., New Haven, Conn. 38 tf.

WOODWORTH'S PATENT Planing, Tonguing, Grooving Machines.—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers. JOHN H. LESTER,
37 13* 57 Pearl st, Brooklyn, L. I.

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc.
CHARLES W. COPELAND,
35 tf Consulting Engineer, 64 Broadway.

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y
27 3m GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,087: they have Judson's patent valves, and will be warranted to work well. S. C. HILLS,
31tf 12 Platt st, New York.

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American. 16 1y*

NOVELTY IRON WORKS—Manufacturing of Machinists' Tools: also Engine Lathes, with an improved Tool Rest, Lathes, and Iron Planers kept on hand: for sale by W. W. NICHOLS & CO., cor. B and Turnpike street, Boston, Mass. 41tf

© 1854 SCIENTIFIC AMERICAN, INC

Scientific Museum.

Important Remarks for Practical Chemists, Manufacturers of Colors, Paints, &c.

I once heard a conversation between some manufacturers, in which one of them complained that sometimes, when making colors, or other articles obtained by mixing some liquids, the precipitate would remain suspended, and not settle for a very long period, thereby creating great loss and inconvenience.—"Why," said another one, "how do you operate, do you use your solutions hot or cold?"—"Sometimes one way, and sometimes the other." I see then where the trouble lies; with me this never happens. The reason of the trouble is, that cold water always contains a great quantity of air, the small bubbles of which catch the fine precipitated particles, and acting as buoys, keep them suspended; this inconvenience "Experimental Chemists" have not noticed, perhaps on account of their operating on small quantities. The remedy is to *boil* the liquids. All solutions intended to form a precipitate, ought to be boiled thoroughly to drive off the air. If it is necessary to use them cold, boil them previously and suffer them to cool in closed vessels, to prevent the contact of air, you will then never experience the trouble you speak of, and all liquids capable of furnishing a precipitate, will do so immediately. B,

Cure for the Bite of Snakes.

"Dr. Whitmore states that he has used the tincture of iodine in cases of the bites of the rattlesnake, viper, and copper-head, in both man and beast, with the effect of putting an entire stop to the swelling and pain of the bitten part in from twelve to sixteen hours. He paints the bitten part over the whole swelling with three or four coats of the tincture, twice daily; and should the swelling extend, which it most always does after the first application, if made soon after the infliction of the wound, he repeats the application. The third application puts a stop to the extension of the swelling, and three or four more will generally restore the limb to its natural state, except, perhaps, sensibility to the touch, and soreness of the muscles. It is not stated whether iodine is alone depended on for a cure, but we would recommend immediate and continued bathings of the wound with spirits of hartshorn, and doses of it to be administered internally, at intervals, with sweetened water. The iodine may then relieve the secondary symptoms.—Dr. Le Conte, of Philadelphia, has lately stated that if the fang enters a large vein there is no chance of recovery, but the blood becomes disorganized."

[We have published a number of cases, at various times, of persons who had been bitten by rattlesnakes, and who had been cured by drinking freely of whiskey; of these there can be no doubt, and it shows us, that in many instances whiskey may effect a cure. We must say, however, that it is not infallable, as we read in a Maryland exchange last week, that a young man who had been bitten by a copper-head, although he had drank freely of whiskey, died in the course of 24 hours after being bitten.

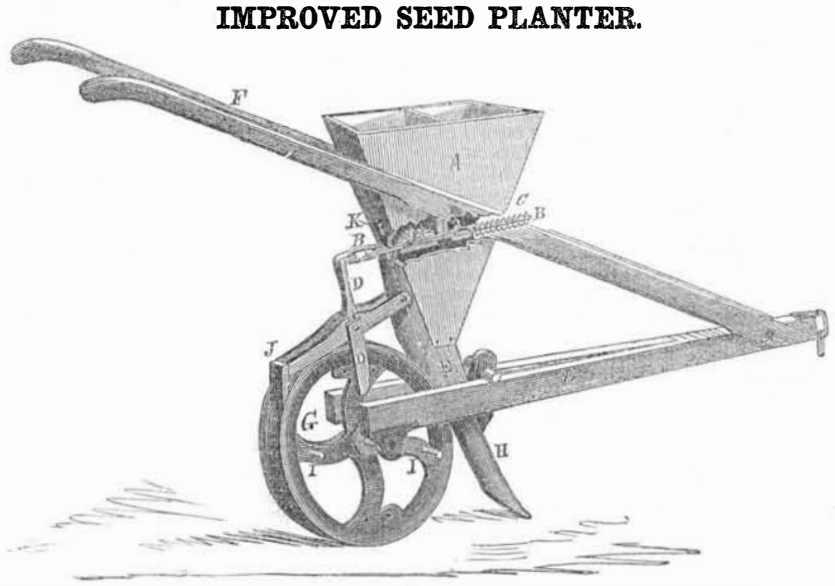
Onions.

The onion is worthy of notice as an article of extensive consumption in this country. It is largely cultivated at home, and is imported into England to the extent of from 700 to 800 tuns a year from Spain and Portugal. But it rises in importance when we consider that in those latter countries it forms one of the common and universal supports of life. It is interesting, therefore, to know, that in addition to the peculiar flavor which first recommends it, the onion is remarkably nutritious. According to my analysis, the dried onion root contains from 25 to 30 per cent. of gluten.—It ranks, in this respect, with the nutritious pea, and the *Gram* of the East. It is not merely as a relish, therefore, that the wayfaring Spaniard eats his onion with his humble crust of bread, as he sits by the refreshing spring: it is, because experience has long proved that, like the cheese of the English laborer, it helps to sustain his strength also, and adds—beyond what its bulk would suggest—to the amount of nourishment which his simple meal supplies.—[Johnston's Chemistry of Common Life.

Large Hail Stones.

We think our clouds do wonders when they shower down summer hail-stones the size of pigeons' eggs, as was done in the vicinity of New York, last year. But the East Indies is the land which fairly eclipses all others for wonderful feats of this kind. "The Calcutta Englishman" describes a storm which took place there on the 3d of last April, on which occasion hail-stones fell the size of bricks. A whirlwind passed along a track of 800 yards in width, and destroyed everything in its course. Hundreds of the natives lost their lives, houses, trees, &c.—even the wild beasts of the jungle, were lifted high in the air and then dashed down in pieces.

IMPROVED SEED PLANTER.



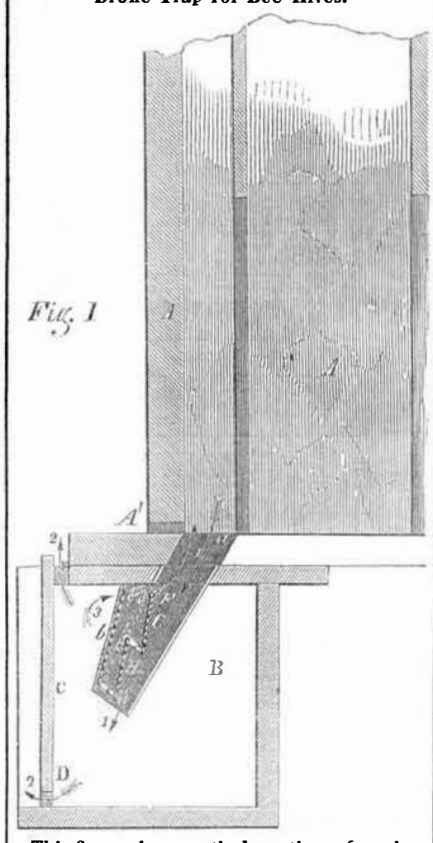
The accompanying engraving is a perspective view, (with a part in section) of an improved Seed Planter, for which a patent was granted to I. Graham McFarlane, of Centre, Perry Co., Pa., on the 14th of last March.

The nature of the invention consists in the employment of a self-acting scraper working over the feeding apertures, for regulating the proper number of grains to be fed into the hill; it also consists in the use of a hanging scraper, by which the groove of the wheel is always kept clear, so as to be in a condition for facilitating the operation of the wheel.

A is the hopper; it has a division for corn and another for plaster or guano. B is the slide; it is operated by a spiral spring, C, and a crank, D. It has a small round aperture, 1, which receives and discharges the grains of corn from the hopper; at the other end is an oblong slot, 2, through which the guano or plaster passes, and is discharged through the tunnel, E, along with the grain. F are the handles, G, the operating wheel, which is behind the depositing tube, H. The wheel has a grooved periphery, and flanges at each side —these cover the seed after it is deposited; I I are projecting pins on the wheel, for striking on the drop shoulder of the crank, as the wheel revolves, to operate the slide at certain intervals, making the hills. Two or more of such pins may be used, so as to increase or diminish the number of hills in a row. The drill tube, H, is arranged, so that a wooden pin can break to relieve it from breaking when it meets with a sudden resistance from some obstruction; J is the scraper, it acts by its own weight and rests in the groove of the wheel to keep it free from dirt. K is a self-acting scraper which rests by its own weight on the slide, B, for the purpose of preventing more than the proper number of grains from passing over the aperture, 1, at once. L is the beam. The claim of the patentee will be found on page 219, this Vol. "Scientific American." This is a very simple and compact seed planter; it deposits both the seed and its fertilizing compost at the same time, and operates well on rough and smooth ground.

More information may be obtained by letter, addressed to the inventor, at Centre, Pa.

Drone Trap for Bee Hives.



This figure is a vertical section of an improved drone-trap for Bee Hives, for which a patent was granted to Clark Wheeler, of Little Valley, Cattaraugus Co., N. Y., on the 9th of May last.

A represents part of a bee hive; A′ is an ingress and egress passage of the working bees. B is the drone trap box; C is a sliding glass front for admitting light to decoy the drones into the box, &c. F is the drone passage communicating with passage, *a*, of the hive, and is set inclined; it consists of a tube having a reticulated front, *b*, for admitting light, &c., and is provided with one or more pendant valves, G H; these valves swing on centers, *d e*, as they are operated by the drones passing under them. As soon as the drones attempt to pass through the egress passage, A′, of the working bees, and find it too small, they will, being attracted by the light from the transparent front of the trap box, seek an escape through the tube, F, as shown by the arrows, 1, causing the valves to swing outward, as they pass, after which the valves assume their common position, and prevent their return to the hive. Working bees going into the trap, pass out as indicated by the arrows, 2 3, through the several passages, E D *c*, provided for their escape, which passages are not large enough for the drones, their bodies being nearly twice as large as those of working bees. The movable glass front is taken out, when desired, to remove the dead or entrapped drones.

In parent or stock bee hives, large numbers of drones are seen between the months of May and August—several thousands often existing in a single hive, consuming the surplus honey, and frequently depriving the working bees of their requisite food for winter. Few drones go off with young swarms; the greater number remain with the parent stock, hence it is both profitable and prudent to entrap a large portion of them from the stock hive or hives. The drone bees doing no labor they should be always limited to the lowest number necessary.

This simple and efficient drone trap for removing a superabundance of drones, can be applied to any hive in use, but is particularly applicable to Wheeler's Patent Eclectic Hive, which is partly represented in this figure, and fully illustrated on page 236, Vol. 5, Sci. Am. This hive and trap, we understand, has already been extensively introduced by the inventor in the States of Vermont, Ohio, Pennsylvania, and New Hampshire, within the past two years, and has met with much favor.

More information may be obtained by letter addressed to the patentee at Little Valley.

Process for Sharpening Razors without Injuring the Temper.

Take a grindstone with a fine grain and dip it into melted tallow until thoroughly imbibed, then set it in the open air, and leave it for two or three months, until the tallow becomes rancid, it will then be fit for use; it is said that stones prepared in this manner will not heat, nor destroy the temper of the razors in the least.

Dr. Hare on Spirit Rappings.

We have seen it asserted in quite a number of our exchanges, that the above distinguished man of science has become a believer in what is called "Spirit Rappings." We cannot believe that Dr. Hare is a believer in the nonsense of all kinds of spirit rappings, although he may believe that much of the phenomena connected with this subject, and brought before the public, is not deception, as some think, but something which cannot be accounted for by any of the known laws of nature.

The London "Times" offers a reward of $5,000, for the discovery within a year, of a substitute for linen and cotton rags in paper making. Paper of every grade has advanced 10 to 20 per cent., all over Europe and America.

MECHANICS

Manufacturers and Inventors

A NEW VOLUME OF THE

SCIENTIFIC AMERICAN

Is commenced about the 30th September, each year, and is the BEST PAPER for Mechanics and Inventors published in the world.

Each Volume contains 416 pages of most valuable reading matter, and is illustrated with over

500 MECHANICAL ENGRAVINGS

of NEW INVENTIONS.

☞ The SCIENTIFIC AMERICAN is a WEEKLY JOURNAL of the

ARTS, SCIENCES, AND MECHANICS,

having for its object the advancement of the

INTERESTS OF MECHANICS, MANUFACTURERS AND INVENTORS.

Each Number is illustrated with from FIVE TO TEN

ORIGINAL ENGRAVINGS

of NEW MECHANICAL INVENTIONS, nearly all of the best inventions which are patented at Washington being illustrated in the Scientific American. It also contains a WEEKLY LIST of AMERICAN PATENTS;—notices of the progress of all MECHANICAL AND SCIENTIFIC IMPROVEMENTS; practical directions on the CONSTRUCTION, MANAGEMENT, and USE of all kinds of MACHINERY, TOOLS, &c. &c.

It is printed with new type on beautiful paper, and being adapted to binding, the subscriber is possessed, at the end of the year, of a LARGE VOLUME of 416 PAGES illustrated with upwards of 500 MECHANICAL ENGRAVINGS.

The Scientific American is the Repertory of Patent Inventions: a volume, each complete in itself, forms an Encyclopedia of the useful and entertaining. The Patent Claims alone are worth ten times the subscription price to every inventor.

TERMS! TERMS!! TERMS!!!

One Copy, for One Year	$2
" Six Months	$1
Five copies, for Six Months	$4
Ten Copies, for Six Months	$8
Ten Copies, for Twelve Months	$15
Fifteen Copies for Twelve Months	$22
Twenty Copies for Twelve Months	$28

Southern and Western Money taken at par for Subscriptions, or Post Office Stamps taken at their par value

Letters should be directed (post-paid) to

MUNN & CO.,

128 Fulton street, New York.

© 1854 SCIENTIFIC AMERICAN, INC